

Vulcan CHEMICALS

443
April 30, 1990

Mr. Bill Petacino
United States Environmental
Protection Agency
726 Minnesota Avenue
Kansas City, KS 66101

Dear Mr. Petacino:

Please find enclosed the six-month status report for fall 1989 for Vulcan Chemicals facility located in Wichita, Kansas. This report contains data collected in conjunction with the RFI.

If you have any questions please contact me at (316) 529-7560.

Sincerely,



Tom Golden
Environmental Engineer

ljs
Enclosure



April 12, 1990

Stanley C. Grant, Ph.D., Secretary
Kansas Department of Health and
Environment
Forbes Field
Topeka, Kansas 66620

Dear Secretary Grant:

Enclosed is a six-month status report evaluating whether the existing groundwater management program is preventing the migration of past contamination and removing the contaminating material. Vulcan is hereby submitting this report to satisfy Item 5 of the January 28, 1986 Administrative Order and Section I.D.9.d. of Vulcan's RCRA facility permit.

All future groundwater reports will be submitted in conjunction with data collection and data evaluation for the RCRA Facility Investigation. This process may require changes in Vulcan's monitoring, corrective action process and/or reporting. Any changes deemed necessary by the RFI will be shared with the Kansas Department of Health and Environment.

If you have any questions, please call Tom Golden at (316) 529-7560.

Sincerely,

D. McCaul Daniel McCaul

Daniel McCaul
Plant Manager

ljs
Enclosure



VULCAN MATERIALS COMPANY

WICHITA PLANT

Response to Item 5 of the
Kansas Department of Health and Environment
Administrative Order of January 28, 1986

Authority/Objective

The Kansas Department of Health and Environment (KDHE), in an Administrative order issued on January 28, 1986, ordered Vulcan Materials Company to:

"Prepare a report evaluating whether the existing groundwater cleanup plan is preventing the migration of the pollution or hazard and removing same and recommending any changes necessary to protect public health and the environment. Said report shall be submitted to KDHE within 60 days of the date of this Order and shall be followed by similar evaluation reports every six months until further notice from KDHE. Following the submission of each such report, Vulcan shall meet with KDHE when requested, to discuss the evaluation of the plan and results of the monitoring and, if indicated, any necessary changes to protect public health and the environment."

The following report constitutes the seventh six-month follow-up report which evaluates the existing groundwater cleanup plan as specified in the order.

This information is being submitted as required by state or federal regulatory agencies. The information is presented in a format which utilized regulatory definitions and standards which do not constitute binding legal standards for purposes of civil litigation.

SEMIANNUAL GROUNDWATER STATUS REPORT

This report presents groundwater data collected in the area of Vulcan's Wichita plant from 1977 to February 1990, and is intended to satisfy the six-month status reporting requirement in the January 28, 1986 KDHE Administrative Order. The information provided is a follow-up to the "Evaluation of Existing Groundwater Program Report" submitted to KDHE on March 31, 1986. The seventh "Semi-annual Groundwater Status Report" does not alter the conclusion submitted in that report, and appear to confirm the continuing effectiveness of the existing Corrective Action Program.

In brief, Vulcan's groundwater Corrective Action Program consists of a counter pumping system in two distinct aquifers. This system is designed to develop and maintain a cone of depression in contaminated aquifers to prevent migration of contaminants.

Vulcan monitors the effectiveness of the pumping system by measuring contaminant levels in area monitoring wells and measuring the static water table. Static head levels in the monitoring wells are measured biannually. By plotting static head measurements on a map and contouring the flow patterns, the cone of depression is identified.

The attached Figure 3 and 4 are the March 1990 water table plots which show that good capture is taking place in both the deep and shallow aquifers. The deep aquifer contours shows that capture by IW-29 is effective by preventing migration to the south and southeast. The shallow aquifer also reveals good capture to the south and south east, with the use of four counter pumping wells. The shallow contour map includes the effects of a recently revised IW 35. To enhance the capture in shallow aquifer, IW-35 was replaced in early March 1990.

It should be recognized that Vulcan is currently undertaking a very comprehensive evaluation of this corrective action program under the RCRA permit, as a RCRA Facility Investigation (or RFI). Vulcan is required to evaluate the integrity of the monitoring program and the integrity of the counter pumping program. The following identifies the steps that are being taken to satisfy this permit requirement.

1. Evaluation of existing groundwater monitoring wells to determine the adequacy of such wells and identification of any wells presently defining the extent of plume in need of replacement or rehabilitation, including:
 - a) Survey of all groundwater well locations to ensure integrity of well casing benchmarks;
 - b) Verification that all groundwater wells, including injection wells, are stratigraphically in the formation depicted on the well logs and confirmation that all groundwater well screens are located as shown and are of an appropriate length;
 - c) Tabulation of all groundwater well construction features. In addition to the features described in (b) above, include features such as well diameter, installation date, screen and casing

- material type, filter pack and grain size distribution, grout mix design, and other annular seal construction details;
- d) Description of methods used to connect segments of the well casings and screens including methods used to plug the bottom and cap the top of the well;
 - e) Verification by field observation and cement records of the integrity of well annulus to prevent downward or upward migration of contaminants through the well bore;
 - f) Verification that all groundwater wells yield representative samples for determining the concentrations of hazardous waste constituents, including metals, volatile organic, non-volatile organic and salts. As a part of this procedure a comparison is made with analytical results from wells constructed of 316 stainless steel or Teflon to those constructed of PVC. At a minimum, this procedure shall require placement of some replicate stainless steel or Teflon wells immediately next to corresponding PVC wells or will incorporate the studies of previous conducted well construction comparative studies.
 - g) Description of procedures for abandonment of any groundwater or injection wells. Identify wells which have been abandoned, give rationale for their abandonment, and explain methods used to prevent movement of fluids in abandoned wells.
2. Evaluation for historical data for analytical accuracy;
 3. Based on conclusions from (1) and (2) above determine the extent of the horizontal and vertical plume.
 4. If vertical or horizontal plume is not adequately defined, design proposed revisions to the existing monitoring program.

To date Vulcan has:

1. resurveyed existing wells;
2. conducted a well integrity study that included an assessment of stratigraphic location, well construction, well completion procedures, current physical condition;
3. evaluated well sampling procedures; and
4. conducted a comparison of PVC with Stainless Steel constructed wells.

Based on these evaluations Vulcan:

1. has modified the sampling procedures;

2. has concluded that the existing PVC constructed wells do provide representative data, but Vulcan is will use stainless steel on any new wells constructed; and
3. will be recommending the replacement or plugging of several wells.

Vulcan has, also, completed the installation and surveying of 23 additional monitor wells. The existing wells and new wells were sampled and analyzed between December 1989 and March of 1990. All data is undergoing a validation check as part of RFI QA/QC procedures. The data for the existing wells has been provided in this report.

In summary the objective of this groundwater program assessment is to determine if modifications to the existing program are needed, both the methods of monitoring and corrective measures. The steps identified above will enable Vulcan to develop a short term monitoring program. Then based on the results of the short term monitoring, the need for additional corrective measures and a long term monitoring program will be established.

To satisfy the January 28, 1986 Administrative Order, Vulcan is submitting the following data that has being collected in conjunction with the RFI. A complete report for the RFI will be compiled and submitted after all scoped work has been completed.

Upgradient water quality data for fall/winter 1989/90 are included as Table 1. Tables 2 and 3 contain monitoring data for the compliance point wells. Tables 4 through 6 contain recent monitor well data by zones and Tables 7 through 35 contain monitoring data from 1977 to February 1990.

The following summarizes area-by-area the most recent analytical findings (the areas are identified in Figure 5):

Zone A: There are six monitoring wells located in this area. Three of these wells--MW4SBS, MW5SBS, and MW11SBS-- are in the shallow unconfined sands. MW4SAD, MW5SAD, and MW11SAD are in the deeper, confined sand zone.

All wells in this zone were sampled. Wells MW5SBS, MW5SAD, MW11SAD and MW11SBS showed detectable levels of volatile organic. Hexachlorinated compounds were detected in MW4SBS and MW4SAD for the first time in seven and five years, respectively. Trace levels of hex compounds continued to be detected in MW5SBS, MW5SAD, and MW11SBS. The hardness levels for well MW4SBS increased this sampling period. The hardness levels for wells MW4SAD, MW5SAD, MW11SAD, MW11SBS, MW4SBS and MW5SBS remained steady. For wells MW5SAD, MW5SBS, MW4SAD, MW11SBS and MW11SAD the chloride levels remained steady.

Zone B: Eighteen wells are located in Zone B. MW3SBS, MW6SBS, MW7SBS, MW9SAD, MW10SBS and MW13SBS through MW16SBS are screened in the shallow sands. Monitoring wells in the deeper aquifer are MW3SAD, MW6SAD, MW7SAD, MW9SBS, MW10SAD, and MW13SAD through MW16SAD. These wells are considered perimeter monitor wells. Table 5 contains data on wells sampled in the fall, 1990.

All Zone B wells were sampled. Wells MW6SBS, MW7SBS, MW7SAD, MW13SBS, through MW15SBS and MW13SAD through MW16SAD showed no organic contamination and stable chlorides and hardness levels. The contamination found in upgradient well MW6SAD is believed to be caused by an improperly decontaminated submersible pump. Well MW10SAD showed a reduction in hex compounds detected. Hex compounds were detected in Well MW3SBS for the first time since 1987. Well MW3SAD continued to show detectable levels of hex. MW9SBS showed increased concentrations in hex and volatile organic levels. Well MW10SBS results showed an increase in volatile organic but a decrease in hex levels. Wells MW13SBS and MW9SBS had increases in volatile organic levels. The hardness levels for MW3SAD, MW10SAD, MW13SAD, MW9SBS, MW15SBS and MW16SBS increased. Chloride levels increased in wells MW9SBS and MW16SBS. For the remaining wells chloride and hardness levels were stable.

Zone C: In Zone C, the three monitoring wells (MW2SBS, MW8SBS, and MW12SBS) are in the shallow aquifer. The two monitoring wells in the deep aquifer are MW2SAD and MW12SAD. Monitoring well MW8SAD is located in an intermediate, confined aquifer. Wells MW2SAD, MW2SBS, MW12SAD and MW12SBS are located adjacent to the interceptor well system at Vulcan.

All Zone C wells were sampled. Wells MW8SAD and MW12SAD samples showed increases in volatile organic levels. Wells MW2SAD and MW12SAD showed detectable levels of chlorinated phenol compounds for the first time in several years. Decrease in hex compounds were observed in MW2SAD and MW12SAD. MW8SAD hex levels did not change. Well MW2SBS and MW8SBS had a decrease in both hex and volatile organic levels. Well MW12SBS had an increase in volatile organic and hex levels. The hardness levels for well MW2SBS lowered. Hardness levels for wells MW12SBS, MW2SAD, MW12SAD and MW8SAD were all stable. Hardness levels for well MW8SBS increased. The chloride level for wells MW2SBS decreased. The chloride levels for wells MW2SAD, MW8SAD, MW8SBS, MW2SBS and MW12SBS were stable.

To address the concerns related to Quality Analysis and Quality Control of data generated all samples were taken with modified sampling methods and all analysis was conducted by a contract laboratory. However, not all data included in this report has undergone the validation checks established by the procedures in the RFI plan. It should also be noted that many of the analytical detection limits have been lowered.

In addition efforts have continued to improve Vulcan's cone of influence to the south and southwest. Since the last report, IW-35 has been moved to the west and its pumping capacity has been increased. This new location and pumping rate will enhance the capture zone between the Vulcan and Abbott pumping systems. Vulcan is also pursuing the rights to install a cluster of monitoring well along the railroad tracks between 63rd and Ridge Rd. These wells would be used to improve tracking of the groundwater levels between Abbott/Air Products and Vulcan.

It should be noted that this report and all future reports will be coordinated with RFI activity.

FIGURE 1
ON-SITE INTERCEPTOR WELLS
ON SW $\frac{1}{4}$, SECTION 27, R28S, T1W

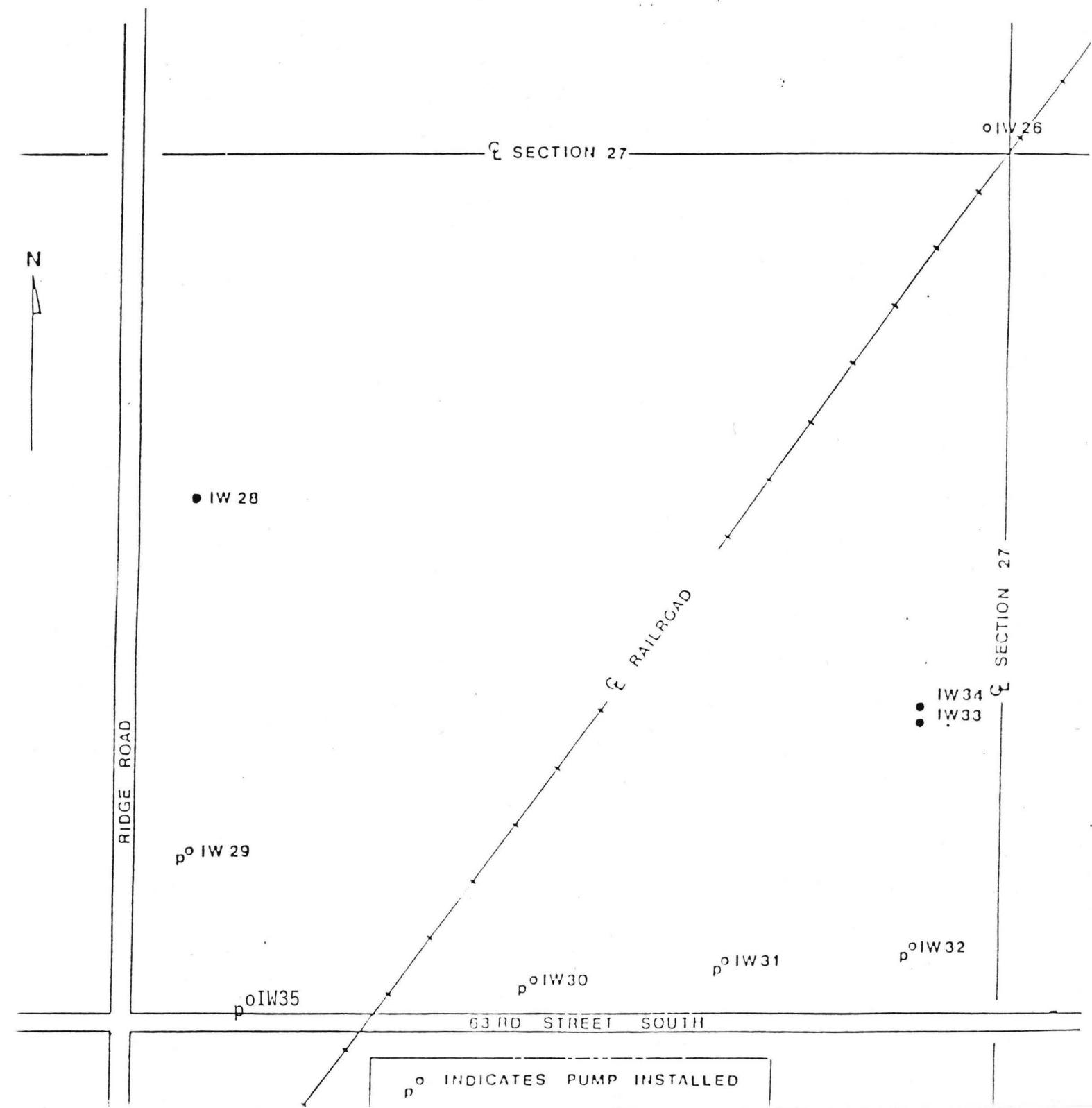


FIGURE 2
LOCATION OF RCRA UPGRADIENT
AND COMPLIANCE POINT MONITOR WELLS

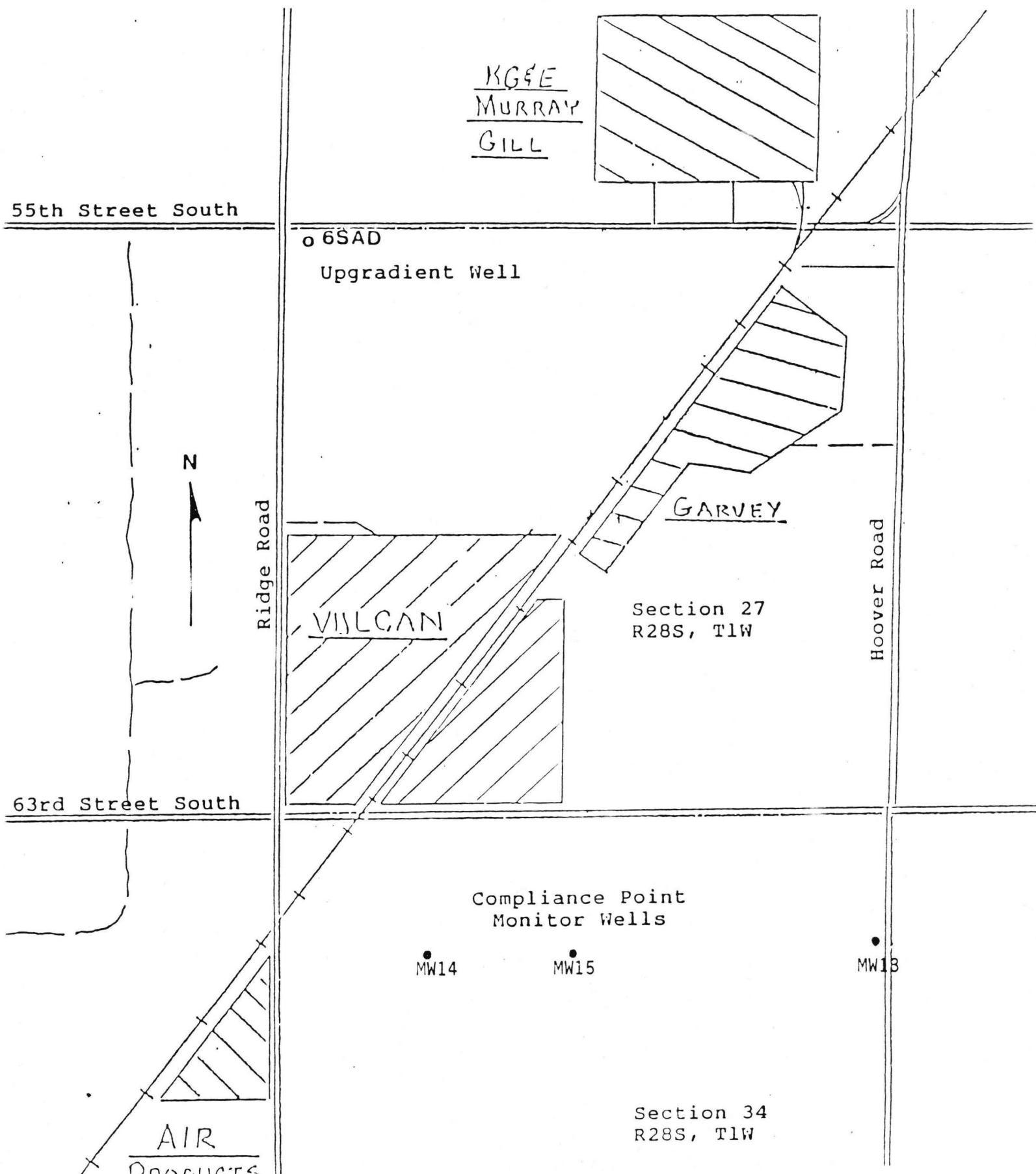
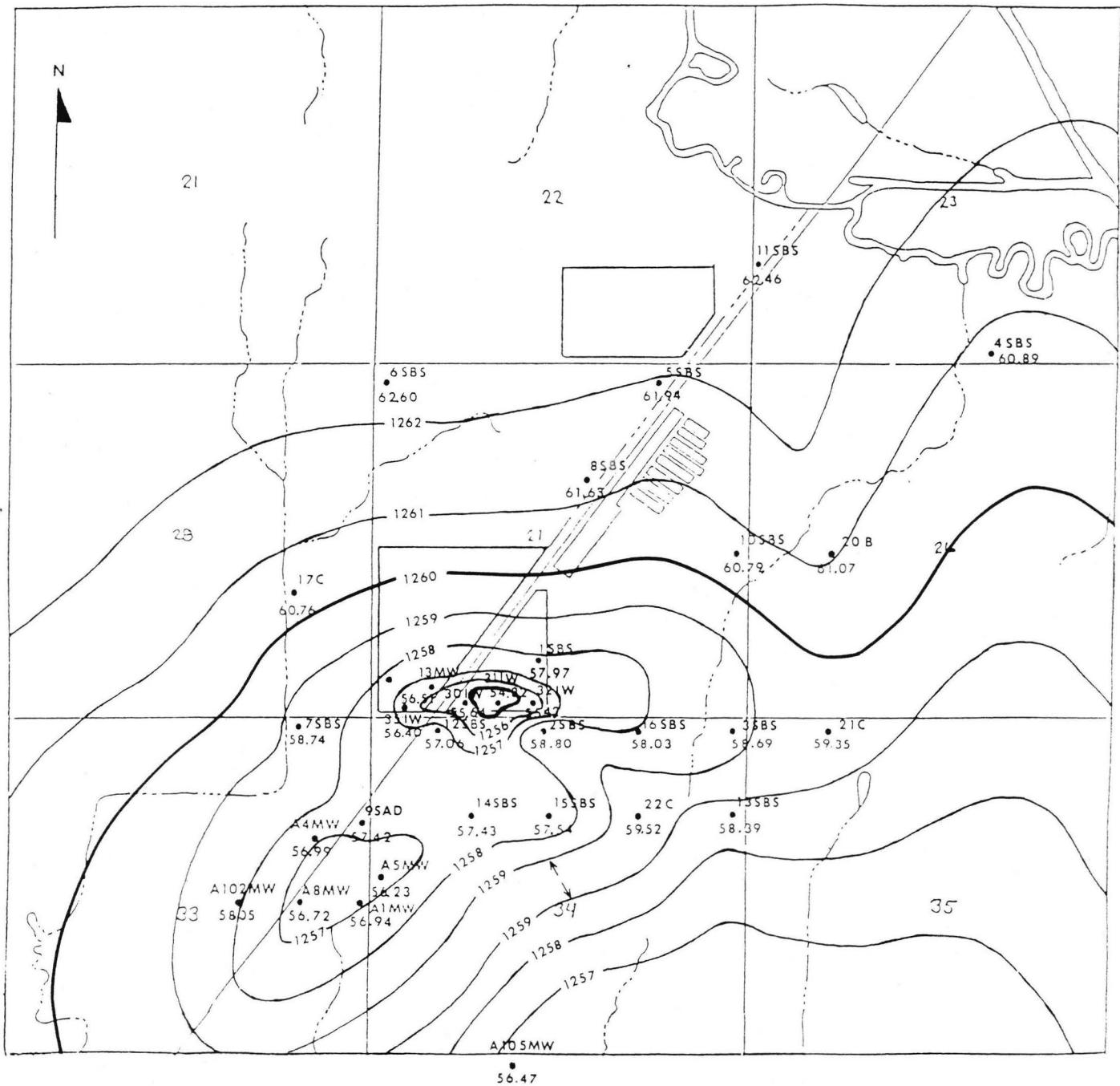


FIGURE 3
WATER TABLE LEVELS
FOR SHALLOW AQUIFER

3-18-90



Scale

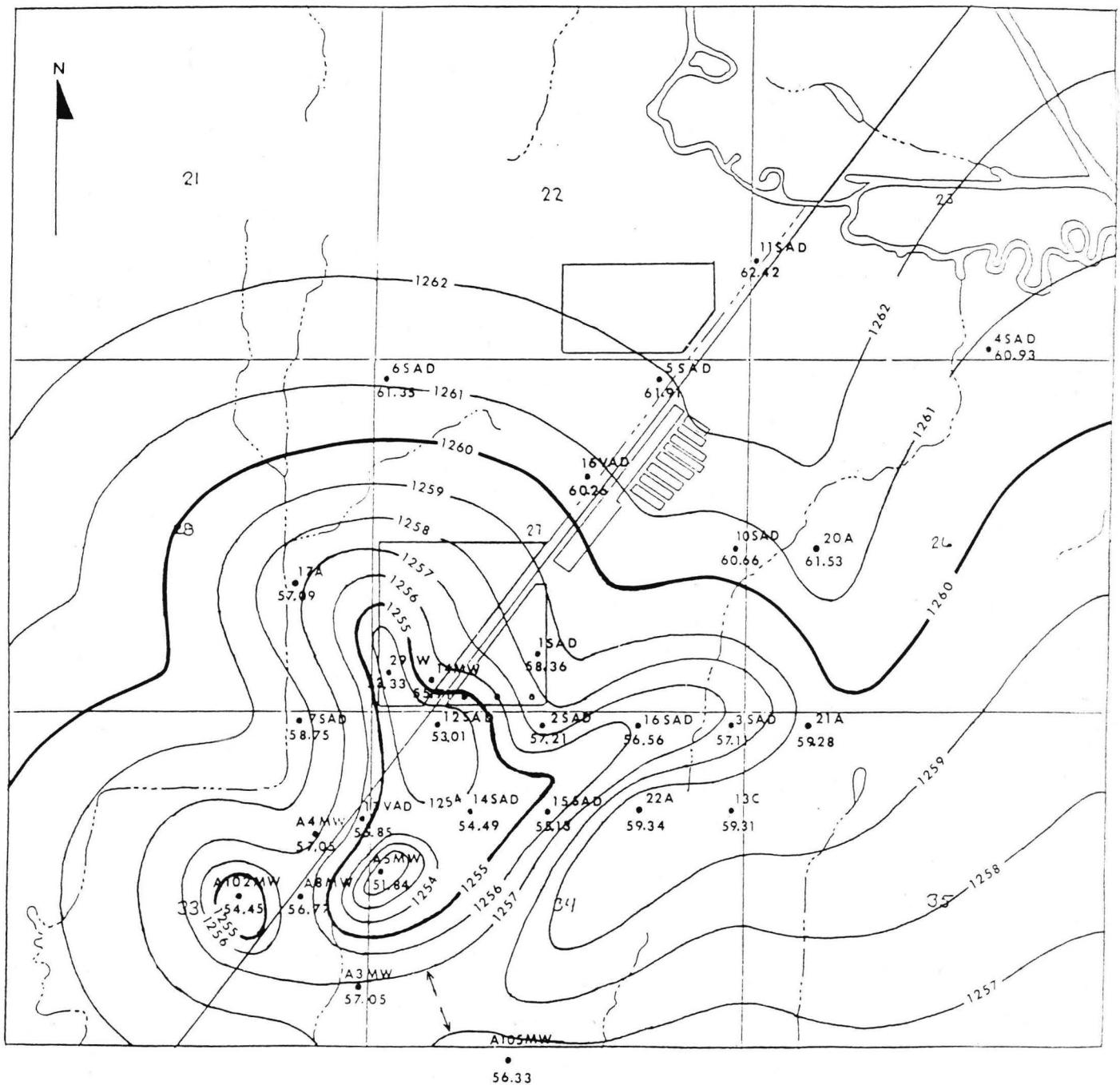
.5

Miles

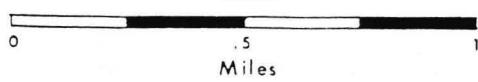
Contour Interval = 1 Foot

FIGURE 4
WATER TABLE LEVELS
FOR DEEP AQUIFER

3-18-90



Scalé



Contour Interval = 1 Foot

FIGURE 5
EVALUATION ZONES

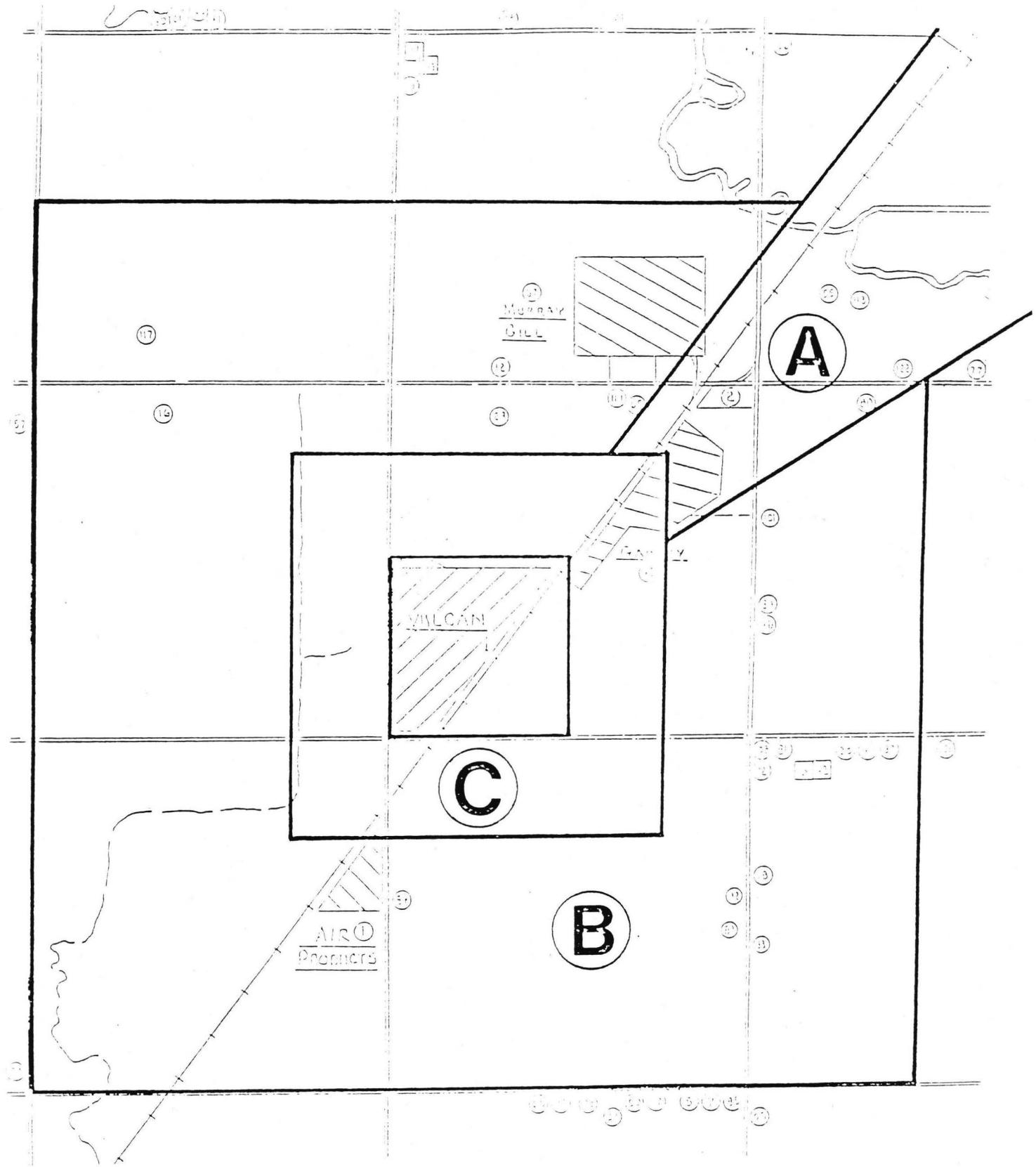


FIGURE 6

OFF-SITE MONITOR WELL LOCATIONS

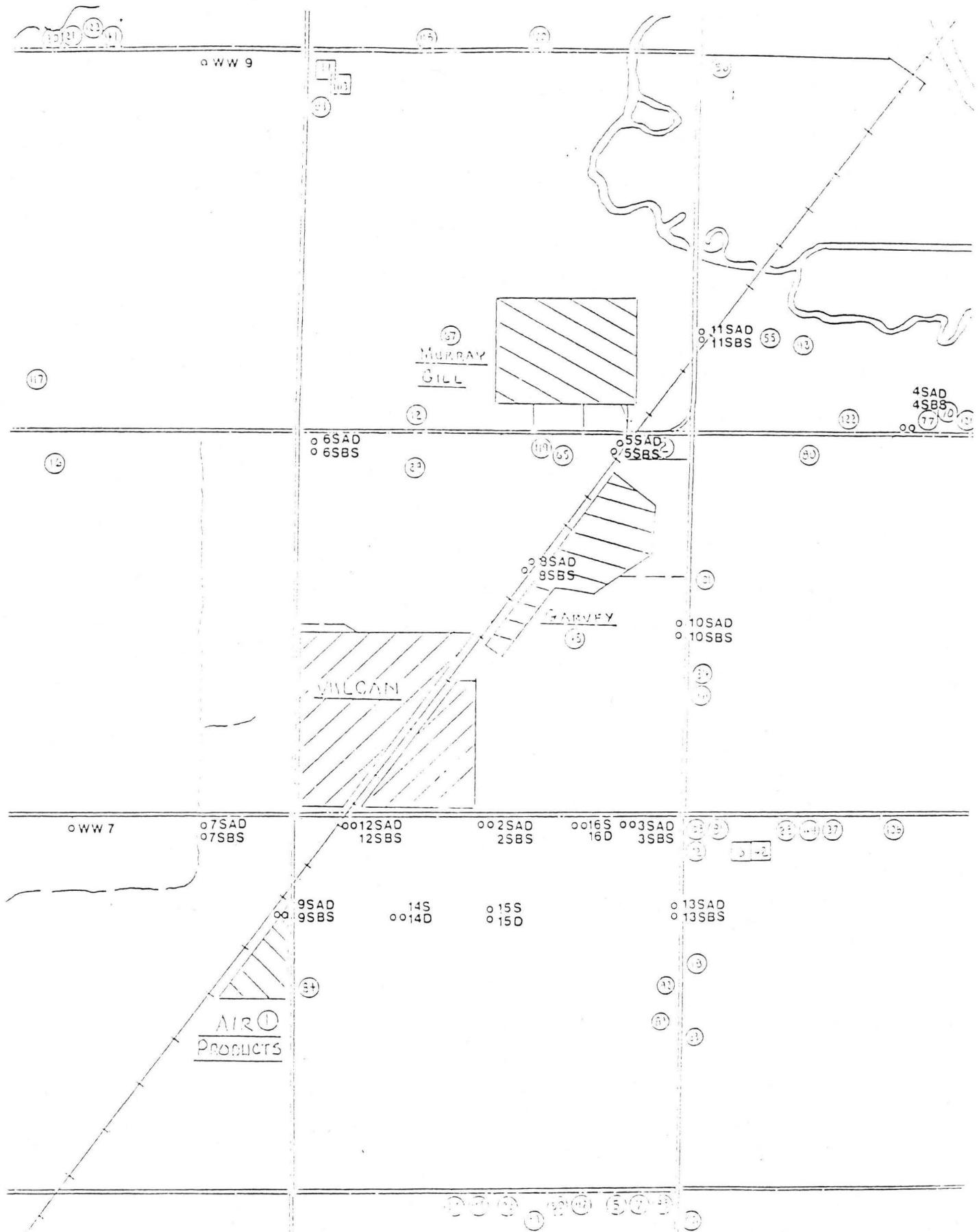


TABLE 1

VULCAN MONITOR WELL ANALYSES
UPGRADIENT WELL

DATE		Dec-89	Feb-90	Dec-89
WELL NUMBER		MW6SAD	MW6SAD	MW6SBS
HARDNESS as CaCO ₃	ppm	249	258	134
CHLORIDES as Cl	ppm	19	28	16
METHYL CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
VINYL CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
CHLOROFORM	ppm	ND(.001)	ND(.001)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(.001)	ND(.001)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(.001)	ND(.001)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(.001)	ND(.001)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
PHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,5-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
PARACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
METACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
HEXACHLOROETHANE	ppb	0.19	0.59	ND(0.1)
HEXACHLOROBUTADIENE	ppb	0.25	3.79	ND(0.1)
HEXACHLOROBENZENE	ppb	2.20	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA
BENZENE	ppb	ND(.001)	ND(.001)	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 2

VULCAN MONITOR WELL ANALYSES
DEEP AQUIFER COMPLIANCE POINT

DATE	Feb-90	Dec-89	Dec-89
WELL NUMBER	MW13SAD	MW14SAD	MW15SAD
HARDNESS as CaCO ₃	ppm	288	359
CHLORIDES as Cl	ppm	55	21
METHYL CHLORIDE	ppm	ND(.001)	ND(.001)
VINYL CHLORIDE	ppm	ND(.001)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(.001)	ND(.001)
CHLOROFORM	ppm	ND(.001)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(.001)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(.001)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(.001)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(.001)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(.001)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(.005)	ND(.005)
PHENOL	ppm	ND(.005)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)
2,5-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)
PARACHLOROPHENOL	ppm	ND(.005)	ND(.005)
METACHLOROPHENOL	ppm	ND(.005)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(.005)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(.005)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(.005)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(.005)	ND(.005)
HEXACHLOROETHANE	ppb	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA
BENZENE	ppb	ND(.001)	ND(.001)

ppm denotes parts per million by weight

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TABLE 3

VULCAN MONITOR WELL ANALYSES
SHALLOW AQUIFER COMPLIANCE POINT

DATE	Feb-90	Dec-89	Dec-89	
WELL NUMBER	MW13SBS	MW14SBS	MW15SBS	
HARDNESS as CaCO ₃	ppm	217	169	297
CHLORIDES as Cl	ppm	31	24	155
METHYL CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
VINYL CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
CHLOROFORM	ppm	ND(.001)	ND(.001)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(.001)	ND(.001)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(.001)	ND(.001)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(.001)	ND(.001)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
PHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,5-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
PARACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
METACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
HEXACHLOROETHANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA
BENZENE	ppb	ND(.001)	ND(.001)	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 3

VULCAN MONITOR WELL ANALYSES
SHALLOW AQUIFER COMPLIANCE POINT

DATE	Feb-90	Dec-89	Dec-89	
WELL NUMBER	MW13SBS	MW14SBS	MW15SBS	
HARDNESS as CaCO ₃	ppm	217	169	297
CHLORIDES as Cl	ppm	31	24	155
METHYL CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
VINYL CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
CHLOROFORM	ppm	ND(.001)	ND(.001)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(.001)	ND(.001)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(.001)	ND(.001)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(.001)	ND(.001)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
PHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,5-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
PARACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
METACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)
HEXACHLOROETHANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA
BENZENE	ppb	ND(.001)	ND(.001)	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 4

AREA PERIMETER WELLS
ZONE A

DATE		Feb-90	Feb-90	Dec-89	Dec-89
WELL NUMBER		MW4SAD	MW4SBS	MW5SAD	MW5SBS
HARDNESS as CaCO ₃	ppm	283	360	567	169
CHLORIDES as Cl	ppm	76	56	532	185
METHYL CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)	ND(.001)
VINYL CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)	ND(.001)
CHLOROFORM	ppm	ND(.001)	ND(.001)	0.014	0.005
1,1,1-TRICHLOROETHANE	ppm	ND(.001)	ND(.001)	ND(.001)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(.001)	ND(.001)	ND(.001)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(.001)	ND(.001)	0.017	0.014
TRICHLOROETHYLENE	ppm	ND(.001)	ND(.001)	0.004	ND(.001)
PERCHLOROETHYLENE	ppm	ND(.001)	ND(.001)	0.005	0.003
ORTHOCHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
PHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
2,5-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
PARACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
METACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(.005)	ND(.005)	ND(.005)	ND(.005)
HEXACHLOROETHANE	ppb	1.56	0.59	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	5.50	2.89	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	0.11
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	1.17	1.32
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA
BENZENE	ppb	ND(.001)	ND(.001)	ND(.001)	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 5

AREA PERIMETER WELL
ZONE B

DATE		Feb-90	Feb-90	Dec-89	Feb-90	Dec-89	Dec-89	Dec-89	Dec-89	Dec-89
WELL NUMBER		MW3SAD	MW3SBS	MW6SAD	MW6SBS	MW7SAD	MW7SBS	MW9SAD	MW9SBS	
HARDNESS as CaCO ₃	ppm	316	331	249	258	134	247	224	570	1440
CHLORIDES as Cl	ppm	18	66	19	28	16	36	33	400	3000
METHYL CHLORIDE	ppm	ND(.001)	ND(.010)	ND(.010)						
VINYL CHLORIDE	ppm	ND(.001)	ND(.010)	ND(.010)						
METHYLENE CHLORIDE	ppm	ND(.001)	ND(.010)	ND(.010)						
CHLOROFORM	ppm	ND(.001)	0.330	9.900						
111-TRICHLOROETHANE	ppm	ND(.001)	ND(.010)	ND(.010)						
ETHYLENE DICHLORIDE	ppm	ND(.001)	ND(.010)	ND(.010)						
CARBON TETRACHLORIDE	ppm	ND(.001)	0.530	10.000						
TRICHLOROETHYLENE	ppm	ND(.001)	ND(.010)	0.120						
PERCHLOROETHYLENE	ppm	ND(.001)	0.068	2.400						
ORTHOCHLOROPHENOL	ppm	ND(.005)								
PHENOL	ppm	ND(.005)								
2,4-DICHLOROPHENOL	ppm	ND(.005)								
2,5-DICHLOROPHENOL	ppm	ND(.005)								
PARACHLOROPHENOL	ppm	ND(.005)								
METACHLOROPHENOL	ppm	ND(.005)								
2,6-DICHLOROPHENOL	ppm	ND(.005)								
2,4,6-TRICHLOROPHENOL	ppm	ND(.005)								
2,4,5-TRICHLOROPHENOL	ppm	ND(.005)								
2,3,4,5-TETRACHLOROPHENOL	ppm	NA								
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(.005)								
PENTACHLOROPHENOL	ppm	ND(.005)								
HEXACHLOROETHANE	ppb	0.16	2.04	0.19	0.59	ND(0.1)	ND(0.1)	ND(0.1)	0.38	17.70
HEXACHLOROBUTADIENE	ppb	0.28	6.72	0.25	3.79	ND(0.1)	ND(0.1)	ND(0.1)	4.53	4.53
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)		2.20	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	1.52							
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	0.29							
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	1.52							
D-HEXACHLOROCYCLOHEXANE	ppb	NA								
BENZENE	ppb	ND(.001)	ND(.010)	ND(.100)						

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 5

TABLE 5 (cont)

AREA PERIMETER WELL
ZONE B

DATE		Feb-90	Feb-90	Feb-90	Feb-90	Dec-89	Dec-89	Dec-89	Dec-89	Dec-89	Dec-89
WELL NUMBER		MW10SAD	MW10SBS	MW13SAD	MW13SBS	MW14SAD	MW14SBS	MW15SAD	MW15SBS	MW16SAD	MW16SBS
HARDNESS as CaCO ₃	ppm	412	281	288	217	359	169	196	297	209	4300
CHLORIDES as Cl	ppm	12	8	55	31	21	24	14	155	27	16700
METHYL CHLORIDE	ppm	ND(.001)									
VINYL CHLORIDE	ppm	ND(.001)									
METHYLENE CHLORIDE	ppm	ND(.001)	0.002								
CHLOROFORM	ppm	ND(.001)	1.200								
1,1,1-TRICHLOROETHANE	ppm	ND(.001)									
ETHYLENE DICHLORIDE	ppm	ND(.001)									
CARBON TETRACHLORIDE	ppm	ND(.001)	0.077								
TRICHLOROETHYLENE	ppm	ND(.001)									
PERCHLOROETHYLENE	ppm	ND(.001)	0.020	ND(.001)							
ORTHOCHLOROPHENOL	ppm	ND(.005)									
PHENOL	ppm	ND(.005)									
2,4-DICHLOROPHENOL	ppm	ND(.005)	0.17								
2,5-DICHLOROPHENOL	ppm	ND(.005)									
PARACHLOROPHENOL	ppm	ND(.005)									
METACHLOROPHENOL	ppm	ND(.005)									
2,6-DICHLOROPHENOL	ppm	ND(.005)	0.28								
2,4,6-TRICHLOROPHENOL	ppm	ND(.005)									
2,4,5-TRICHLOROPHENOL	ppm	ND(.005)	2.60								
2,3,4,5-TETRACHLOROPHENOL	ppm	NA									
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(.005)									
PENTACHLOROPHENOL	ppm	ND(.005)									
HEXAChLOROETHANE	ppb	ND(10.0)	ND(10.0)	ND(0.1)	ND(5.00)						
HEXAChLOROBUTADIENE	ppb	0.54	1.41	ND(0.1)	ND(5.00)						
HEXAChLOROBENZENE	ppb	ND(0.1)	ND(5.00)								
A-HEXAChLOROCYCLOHEXANE	ppb	ND(0.1)	7.29								
B-HEXAChLOROCYCLOHEXANE	ppb	ND(0.1)	0.57	ND(0.1)	11.40						
G-HEXAChLOROCYCLOHEXANE	ppb	ND(0.1)	5.94								
D-HEXAChLOROCYCLOHEXANE	ppb	NA									
BENZENE	ppb	ND(.001)	510.00								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

TABLE 6

VULCAN MONITOR WELL ANALYSES

Zone C

DATE		Feb-90	Feb-90	Dec-89	Dec-89	Dec-89	Dec-89
WELL NUMBER		MW2SAD	MW2SBS	MW8SAD	MW8SBS	MW12SAD	MW12SBS
HARDNESS as CaCO ₃	ppm	476	375	469	818	419	476
CHLORIDES as Cl	ppm	245	755	450	810	150	480
METHYL CHLORIDE	ppb	ND(.001)	ND(.001)	ND(.010)	ND(.010)	ND(.001)	ND(.100)
VINYL CHLORIDE	ppb	ND(.001)	ND(.001)	ND(.010)	ND(.010)	0.005	ND(.100)
METHYLENE CHLORIDE	ppb	ND(.001)	ND(.001)	ND(.010)	ND(.010)	ND(.001)	ND(.100)
CHLOROFORM	ppb	ND(.001)	0.012	0.020	0.075	0.007	7.300
111-TRICHLOROETHANE	ppb	ND(.001)	ND(.001)	ND(.010)	ND(.010)	ND(.001)	ND(.100)
ETHYLENE DICHLORIDE	ppb	ND(.001)	ND(.001)	ND(.010)	ND(.010)	ND(.001)	ND(.100)
CARBON TETRACHLORIDE	ppb	ND(.001)	0.150	0.170	2.200	0.005	11.000
TRICHLOROETHYLENE	ppb	ND(.001)	0.003	ND(.010)	ND(.010)	0.009	0.260
PERCHLOROETHYLENE	ppb	ND(.001)	0.032	ND(.010)	ND(.010)	0.011	4.700
ORTHOCHLOROPHENOL	ppb	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)
PHENOL	ppb	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)
2,4-DICHLOROPHENOL	ppb	ND(.005)	ND(.005)	ND(.005)	ND(.005)	0.025	ND(.005)
2,5-DICHLOROPHENOL	ppb	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)
PARACHLOROPHENOL	ppb	0.036	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)
METACHLOROPHENOL	ppb	NA	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)
2,6-DICHLOROPHENOL	ppb	ND(.005)	ND(.005)	ND(.005)	ND(.005)	0.016	ND(.005)
2,4,6-TRICHLOROPHENOL	ppb	ND(.005)	ND(.005)	ND(.005)	ND(.005)	0.067	ND(.005)
2,4,5-TRICHLOROPHENOL	ppb	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppb	NA	NA	NA	NA	NA	NA
2,3,4,6-TETRACHLOROPHENOL	ppb	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)
PENTACHLOROPHENOL	ppb	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)	ND(.005)
HEXACHLOROETHANE	ppb	ND(0.1)	0.59	ND(0.1)	ND(0.1)	ND(1.00)	16.80
HEXACHLOROBUTADIENE	ppb	4.63	1.17	ND(0.1)	ND(0.1)	ND(1.00)	2.86
HEXACHLOROBENZENE	ppb	ND(0.1)	1.23	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	0.17	ND(0.1)	0.11	ND(0.1)	0.81
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	3.48	0.18	0.30	0.15	4.53
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	0.21	ND(0.1)	0.31
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA
BENZENE	ppb	2.4	ND(.001)	ND(.010)	ND(.010)	ND(.001)	ND(.100)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 7

VULCAN MONITOR WELL ANALYSES
TREND FOR MW2SAD

DATE		Nov-77	Jul-79	Dec-81	Oct-83	Sep-85	Oct-87	Aug-88	Oct-88	Apr-89	Feb-90
WELL NUMBER		MW2SAD									
HARDNESS as CaCO ₃	ppm	640	980	630	170	1110	200	290	420	400	476
CHLORIDES as Cl	ppm	390	1110	609	73	1140	42	78	175	272	245
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.07	0.022	0.062	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	0.28	0.023	ND(0.005)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
111-TRICHLOROETHANE	ppm	ND(0.10)	0.01	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.20	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	0.04	0.03	0.091	ND(0.108)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	0.001	0.13	0.014	0.019	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	0.18	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,4-DICHLOROPHENOL	ppm	0.440	NA	ND(0.001)	0.24	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
PARACHLOROPHENOL	ppm	NA	0.149	ND(0.001)	0.15	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.036
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,6-DICHLOROPHENOL	ppm	0.067	0.002	ND(0.001)	0.31	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	0.020	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	0.12	ND(0.2)	ND(0.10)	0.14	0.3	2.20	1.70	0.89	0.58	ND(0.1)
HEXACHLOROBUTADIENE	ppb	0.60	0.4	ND(0.10)	ND(0.10)	0.3	2.40	0.32	0.12	0.56	4.63
HEXACHLOROBENZENE	ppb	ND(0.01)	0.5	ND(0.10)	2.61	0.8	0.30	ND(0.1)	0.74	1.20	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	0.5	26.8	0.4	ND(0.1)	ND(0.1)	3.10	7.40	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	2.0	8.9	0.27	2.00	6.80	0.32	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	1.0	49.8	ND(0.1)	9.80	ND(0.1)	ND(0.1)	46.00	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	2.4								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 8

VULCAN MONITOR WELL ANALYSES
TREND FOR MW2SBS

DATE		Nov-77	Jul-79	Dec-81	Oct-84	Mar-85	Oct-86	Oct-87	Aug-88	Oct-88	Feb-90
WELL NUMBER		MW2SBS									
HARDNESS as CaCO ₃	ppm	2160	2540	1820	820	610	640	650	560	560	375
CHLORIDES as Cl	ppm	3010	3650	2499	1510	874	1158	1127	1086	1105	755
METHYL CHLORIDE	ppm	NA	NA	NA	0.063	0.014	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	0.001	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.02	0.025	*	0.001	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	0.09	0.03	0.280	ND(0.010)	0.051	0.075	0.048	0.130	0.079	0.012
111-TRICHLOROETHANE	ppm	ND(0.10)	0.08	ND(0.001)	ND(0.010)	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.03	0.009	ND(0.010)	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	0.08	0.01	0.630	ND(0.100)	0.054	0.790	0.750	0.650	0.610	0.150
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.008	0.029	0.001	ND(0.005)	ND(0.005)	ND(0.005)	0.006	0.003
PERCHLOROETHYLENE	ppm	ND(0.002)	0.12	0.125	0.199	0.007	0.010	0.053	0.410	0.027	0.032
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	0.042	NA	ND(0.001)	0.03	ND(0.01)	ND(0.010)	0.04	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	0.036	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	0.017	0.238	0.027	ND(0.01)	ND(0.01)	ND(0.010)	0.03	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	0.034	ND(0.001)	0.009	0.02	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	0.20	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.06	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	0.13	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	ND(0.01)	1.8	1.7	0.10	ND(0.01)	0.22	0.78	4.00	3.80	0.59
HEXACHLOROBUTADIENE	ppb	ND(0.01)	0.2	ND(0.10)	0.03	0.17	22.00	2.40	1.50	0.62	1.17
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	0.81	0.86	1.90	1.90	0.92	1.10	1.23
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	0.5	1.1	0.40	0.37	0.19	0.22	0.21	0.15	0.17
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	63.45	57.10	4.50	1.40	16.00	16.00	3.48
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	0.4	0.5	0.24	0.26	0.73	11.00	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	NA	
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 9

VULCAN MONITOR WELL ANALYSES
TREND FOR MW3SAD

DATE		Oct-77	Jul-79	Dec-81	Oct-83	Oct-85	Oct-86	Sep-87	Oct-88	Mar-89	Feb-90
WELL NUMBER		MW3SAD									
HARDNESS as CaCO ₃	ppm	210	50	290	200	170	110	130	210	180	316
CHLORIDES as Cl	ppm	19	12	19	16	10	6	7	19	85	18
METHYL CHLORIDE	ppm	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)	
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)	
METHYLENE CHLORIDE	ppm	ND(0.25)		0.01	0.013	0.041	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)		0.02	0.008	ND(0.005)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
111-TRICHLOROETHANE	ppm	ND(0.10)		0.07	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	ND(0.01)		0.002	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.03)	ND(0.01)		0.017	ND(0.108)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)		NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.002)		0.04	0.007		0.008	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)
ORTHOCHLOROPHENOL	ppm	ND(0.02)		NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	NA		NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)		NA	ND(0.001)		0.01	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA		NA	NA		NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)		ND(0.01)		ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA		ND(0.01)		ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)			0.03	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)		ND(0.01)		ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA		ND(0.01)		ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA		NA		ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)		ND(0.01)		ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)		ND(0.01)		ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	4.70	ND(0.2)	ND(0.10)		0.15	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.16
HEXACHLOROBUTADIENE	ppb	48.80	0.5	ND(0.10)		ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.28
HEXACHLOROBENZENE	ppb	0.58	ND(0.2)	ND(0.10)		0.10	0.2	ND(0.1)	0.15	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)		1.1	1.2	1.9	ND(0.1)	0.19	0.23	ND(0.1)	0.18
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA		2.0	1.2	1.50	1.10	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)		0.6	6.1	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.16
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA		NA	NA	NA	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	NA	NA		NA	NA	NA	NA	NA	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 10

VULCAN MONITOR WELL ANALYSES
TREND FOR MW3SBS

DATE		Oct-77	Jul-79	Dec-81	Oct-83	Oct-85	Oct-86	Sep-87	Oct-88	Mar-89	Feb-90
WELL NUMBER		MW3SBS									
HARDNESS as CaCO ₃	ppm	310	180	300	160	150	120	170	260	280	331
CHLORIDES as Cl	ppm	24	24	29	39	15	15	10	99	85	66
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.01	0.005	0.051	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	ND(0.01)	0.005	ND(0.005)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
111-TRICHLOROETHANE	ppm	ND(0.10)	0.01	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	ND(0.01)	0.002	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.03	0.010	ND(0.108)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.02	0.004	0.006	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	0.01	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	0.02	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	2.20	ND(0.2)	ND(0.10)	1.21	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	2.04
HEXACHLOROBUTADIENE	ppb	19.60	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	6.72
HEXACHLOROBENZENE	ppb	0.34	1.5	ND(0.10)	0.14	0.2	0.14	0.22	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	0.4	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	0.9	0.3	0.38	0.36	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	0.4	0.4	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 11

VULCAN MONITOR WELL ANALYSES
TREND FOR MW4SAD

DATE		Nov-77	Jul-79	Dec-81	Mar-83	Oct-84	Oct-85	Oct-86	Oct-87	Sep-88	Feb-90
WELL NUMBER		MW4SAD									
HARDNESS as CaCO ₃	ppm	280	270	230	220	180	240	210	160	200	283
CHLORIDES as Cl	ppm	138	155	74	72	76	78	73	49	75	76
METHYL CHLORIDE	ppm	NA	NA	NA	ND(0.10)	0.017	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	ND(0.10)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.01	0.007	ND(0.10)	*	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	0.02	0.006	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(0.10)	0.01	ND(0.001)	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.06	0.002	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.01	0.111	ND(0.10)	ND(0.100)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)	ND(0.10)	0.087	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.01	0.014	ND(0.10)	0.211	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	*	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	0.02	ND(0.001)	ND(0.001)	0.020	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.014	0.01	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	0.04	ND(0.2)	ND(0.10)	1.15	0.08	0.1	ND(0.1)	ND(0.1)	ND(0.1)	1.56
HEXACHLOROBUTADIENE	ppb	1.20	0.2	ND(0.10)	ND(0.10)	0.02	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	5.50
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	0.25	0.01	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	0.4	ND(0.10)	ND(0.10)	0.01	0.2	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	ND(0.10)	0.13	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	0.04	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	ND(0.1)	ND(0.1)	NA						
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 12

VULCAN MONITOR WELL ANALYSES
TREND FOR MW4SBS

DATE		Nov-77	Jul-79	Sep-80	Dec-81	Oct-83	Oct-85	Oct-86	Oct-87	Sep-88	Feb-90
WELL NUMBER		MW4SBS									
HARDNESS as CaCO ₃	ppm	350	350	460	290	320	210	200	230	180	360
CHLORIDES as Cl	ppm	242	310	165	183	93	68	70	77	86	56
METHYL CHLORIDE	ppm	NA	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.01	0.004	0.003	0.020	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	0.03	0.002	0.003	ND(0.005)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
111-TRICHLOROETHANE	ppm	ND(0.10)	0.01	NA	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.94	ND(0.001)	0.002	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.01	ND(0.001)	0.030	ND(0.108)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.02	0.001	0.006	ND(0.004)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	ND(0.001)	0.02	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	0.01	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	0.07	0.2	ND(0.10)	ND(0.10)	2.63	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.59
HEXACHLOROBUTADIENE	ppb	0.45	0.3	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	2.89
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	ND(0.10)	0.14	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	ND(0.1)	ND(0.1)	NA						
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 13

VULCAN MONITOR WELL ANALYSES
TREND FOR MW5SAD

DATE		Nov-77	Jul-79	Dec-81	Oct-83	Nov-84	Oct-85	Sep-86	Oct-87	Oct-88	Dec-89
WELL NUMBER		MW5SAD									
HARDNESS as CaCO ₃	ppm	820	750	740	640	220	700	590	540	550	567
CHLORIDES as Cl	ppm	796	275	633	610	325	624	588	490	516	532
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.01	0.003	0.005	*	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	0.01	0.018	ND(0.005)	0.093	ND(0.010)	ND(0.005)	0.007	ND(0.005)	0.014
111-TRICHLOROETHANE	ppm	ND(0.10)	2.53	ND(0.001)	NA	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.03	0.001	NA	0.022	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.01	0.017	ND(0.108)	0.102	ND(0.010)	ND(0.005)	0.011	ND(0.005)	0.017
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.003	NA	0.106	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	0.004
PERCHLOROETHYLENE	ppm	ND(0.002)	0.08	0.009	0.010	0.151	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	0.005
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	0.002	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	0.001	ND(0.001)	0.03	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	0.05	ND(0.2)	ND(0.10)	2.10	0.09	0.4	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	1.20	0.2	ND(0.10)	ND(0.10)	0.03	0.1	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	ND(0.03)	ND(0.01)	0.1	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	ND(0.10)	0.09	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	ND(0.10)	4.81	2.1	2.00	1.90	1.40	1.17
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	0.09	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	ND(0.1)	ND(0.1)	NA						
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 14

VULCAN MONITOR WELL ANALYSES
TREND FOR MW5SBS

DATE		Nov-77	Jul-79	Dec-81	Oct-83	Nov-84	Oct-85	Sep-86	Oct-87	Oct-88	Dec-89
WELL NUMBER		MW5SBS									
HARDNESS as CaCO ₃	ppm	370	200	150	200	170	160	160	230	150	169
CHLORIDES as Cl	ppm	488	290	92	163	172	114	140	127	164	185
METHYL CHLORIDE	ppm	NA	NA	NA	NA	0.017	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.05	0.006	0.016	*	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	0.13	0.004	ND(0.005)	0.017	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	0.005
111-TRICHLOROETHANE	ppm	ND(0.10)	0.99	ND(0.001)	NA	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.05	ND(0.001)	NA	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.01	0.007	0.152	ND(0.100)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	0.014
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)	NA	0.016	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.06	ND(0.001)	ND(0.004)	0.066	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	0.003
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	0.004	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	0.042	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	0.06	ND(0.2)	ND(0.10)	2.01	0.72	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	1.20	0.2	ND(0.10)	ND(0.10)	0.70	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.01)	0.2	ND(0.10)	ND(0.03)	0.05	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.11
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	ND(0.10)	0.06	0.5	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	ND(0.10)	3.56	1.2	1.40	1.30	2.30	1.32
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	0.2	ND(0.10)	ND(0.10)	0.08	ND(0.1)	0.12	0.47	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	ND(0.1)	ND(0.1)	NA						
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 15

VULCAN MONITOR WELL ANALYSES
TREND FOR MW6SAD

DATE		Oct-77	Jul-79	Dec-81	Oct-82	Feb-84	Sep-86	Sep-88	Mar-89	Dec-89	Feb-90
WELL NUMBER		MW6SAD									
HARDNESS as CaCO ₃	ppm	250	570	270	164	220	220	180	240	249	258
CHLORIDES as Cl	ppm	27	140	19	14	82	18	21	21	19	28
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.001)	ND(0.001)	ND(0.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	NA	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.001)	ND(0.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	ND(0.01)	0.081	0.009	0.032	ND(0.005)	ND(0.005)	ND(0.001)	ND(0.001)	ND(0.001)
CHLOROFORM	ppm	ND(0.03)	0.46	0.008	ND(0.006)	0.001	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.001)	ND(0.001)
111-TRICHLOROETHANE	ppm	ND(0.10)	0.01	ND(0.001)	NA	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.001)	ND(0.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	ND(0.01)	ND(0.001)	ND(0.005)	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.001)	ND(0.001)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.01	0.154	ND(0.136)	0.001	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.001)	ND(0.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)	NA	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.001)	ND(0.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	4.46	0.008	0.009	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.001)	ND(0.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	0.004	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	0.030	0.01	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.010)	NA	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.003	0.24	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)
HEXACHLOROETHANE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	0.01	0.04	ND(0.1)	ND(0.1)	ND(0.1)	0.19	0.59
HEXACHLOROBUTADIENE	ppb	ND(0.01)	0.3	ND(0.10)	ND(0.10)	ND(0.01)	ND(0.1)	ND(0.1)	ND(0.1)	0.25	3.79
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	ND(0.02)	2.61	ND(0.1)	ND(0.1)	ND(0.1)	2.20	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.01)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	ND(0.10)	26.30	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.20)	17.10	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	NA	NA
BENZENE	ppb	NA	ND(.001)	ND(.001)							

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 16

VULCAN MONITOR WELL ANALYSES
TREND FOR MW6SBS

DATE	OCT 77	JUL 79	SEP 80	MAR 81	DEC 81	May-88	Mar-89	Dec-89	
WELL NUMBER	MW6SBS	MW6SBS	MW6SBS	MW6SBS	MW6SBS	MW6SBS	MW6SBS	MW6SBS	
HARDNESS as CaCO ₃	ppm	120	310	210	170	190	180	130	134
CHLORIDES as Cl	ppm	24	109	20	19	23	21	20	16
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.005)	ND(0.005)	ND(0.001)	
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	ND(0.005)	ND(0.005)	ND(0.001)	
METHYLENE CHLORIDE	ppm	ND(0.25)	0.04	0.001	0.005	0.008	ND(0.005)	ND(0.005)	ND(0.001)
CHLOROFORM	ppm	ND(0.03)	15.67	0.001	0.006	0.024	ND(0.005)	ND(0.005)	ND(0.001)
111-TRICHLOROETHANE	ppm	ND(0.10)	0.01	NA	ND(0.001)	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.03	ND(0.001)	0.021	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.001)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.05	ND(0.001)	0.009	0.096	ND(0.005)	ND(0.005)	ND(0.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)	ND(0.001)	0.001	ND(0.005)	ND(0.005)	ND(0.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.17	ND(0.001)	0.005	0.013	ND(0.005)	ND(0.005)	ND(0.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	NA	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	ND(0.001)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.005)
PARA-CHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.010)	ND(0.010)	ND(0.005)
META-CHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	0.002	ND(0.001)	ND(0.001)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.010)	ND(0.010)	ND(0.005)
HEXA-CHLOROETHANE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)
HEXA-CHLOROBUTADIENE	ppb	ND(0.01)	0.3	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)
HEXA-CHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXA-CHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXA-CHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXA-CHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXA-CHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	ND(.001)						

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 17

VULCAN MONITOR WELL ANALYSES
TREND FOR MW7SAD

DATE		Oct-77	Jul-79	Dec-81	Oct-82	Nov-84	Oct-85	Oct-87	May-88	Mar-89	Dec-89
WELL NUMBER		MW7SAD	MW7SAD	MW7SAD	MW7SAD	MW7SAD	MW7SAD	MW7SAD	MW7SAD	MW7SAD	MW7SAD
HARDNESS as CaCO ₃	ppm	1800	4700	6370	2600	170	190	240	280	270	247
CHLORIDES as Cl	ppm	1400	4969	7247	3580	133	39	32	34	34	36
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(.001)	
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	0.93	8.32	8.2	2.21	*	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	4.30	5.01	12.5	4.69	0.255	0.013	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(0.10)	41.44	ND(0.001)	NA	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	36.65	1.7	1.15	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	5.30	9.32	17.2	0.81	0.446	0.015	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.3	NA	0.143	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	0.50	27.22	5.9	0.22	0.304	0.012	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	0.035	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	0.004	0.01	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	0.009	0.152	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	0.001	0.026	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.015	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	0.107	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
HEXACHLOROETHANE	ppb	29.30	105.0	25.5	11.60	0.16	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	10.80	10.5	14.5	4.30	0.04	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	0.25	ND(0.2)	3.2	0.06	ND(0.01)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	1.60	13.8	2.9	4.2	0.02	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	3.9	ND(0.01)	ND(0.1)	0.11	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	16.1	2.5	3.7	0.01	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 18

VULCAN MONITOR WELL ANALYSES
TREND FOR MW7SBS

DATE		Oct-77	Jul-79	Dec-81	Oct-82	Nov-84	Apr-86	Oct-87	May-88	Mar-89	Dec-89
WELL NUMBER		MW7SBS	MW7SBS								
HARDNESS as CaCO ₃	ppm	210	1020	260	140	200	210	290	340	250	224
CHLORIDES as Cl	ppm	35	311	75	27	137	35	49	102	33	33
METHYL CHLORIDE	ppm	NA	NA	NA	ND(0.01)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)		
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	NA	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.01	0.174	0.011	*	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	0.04	0.79	0.065	ND(0.006)	0.148	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
111-TRICHLOROETHANE	ppm	ND(0.10)	0.75	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.17	0.003	ND(0.005)	0.029	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	0.05	0.01	2.860	ND(0.136)	0.117	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)	NA	0.084	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	0.005	0.54	0.056	0.006	0.267	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	0.044	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	0.10	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.025	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
HEXAChLOROETHANE	ppb	1.30	1.0	0.2	ND(0.01)	0.47	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXAChLOROBUTADIENE	ppb	6.10	0.2	ND(0.10)	ND(0.10)	0.15	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXAChLOROBENZENE	ppb	0.66	ND(0.2)	ND(0.10)	ND(0.02)	ND(0.01)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXAChLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.01)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXAChLOROCYCLOHEXANE	ppb	NA	NA	NA	ND(0.10)	ND(0.01)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXAChLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.20)	0.01	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXAChLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 19

VULCAN MONITOR WELL ANALYSES
TREND FOR MW8SAD

DATE		Nov-77	Jul-79	Sep-80	Dec-81	Mar-84	Oct-85	Sep-86	Apr-87	Oct-88	Dec-89
WELL NUMBER		MW8SAD									
HARDNESS as CaCO ₃	ppm	350	1950	830	640	510	580	520	520	510	469
CHLORIDES as Cl	ppm	404	1258	575	566	446	490	465	444	479	450
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.001)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.010)	ND(0.010)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.01	0.020	0.031	0.001	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
CHLOROFORM	ppm	ND(0.03)	0.52	0.002	0.032	0.013	ND(0.010)	0.009	0.008	0.010	0.020
111-TRICHLOROETHANE	ppm	ND(0.10)	0.05	NA	ND(0.001)	ND(0.001)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.04	ND(0.001)	0.002	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)	ND(0.010)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.54	0.007	1.360	ND(0.001)	0.036	0.029	0.015	0.032	0.170
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.001	ND(0.001)	ND(0.001)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.16	0.008	0.024	0.008	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.005)	ND(0.005)
PHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.001)	1.00	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	0.01	ND(0.001)	0.025	ND(0.001)	2.50	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	NA	1.30	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	0.022	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXAHCLOROETHANE	ppb	0.92	1.6	ND(0.10)	1.2	5.5	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXAHCLOBUTADIENE	ppb	10.90	0.6	ND(0.10)	0.4	3.9	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXAHCLOBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	ND(0.10)	0.9	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXAHCLOCYCLOHEXANE	ppb	ND(0.10)	0.3	ND(0.10)	ND(0.10)	0.5	0.3	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXAHCLOCYCLOHEXANE	ppb	NA	NA	NA	NA	10.5	0.2	0.18	0.19	0.18	0.18
G-HEXAHCLOCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	1.4	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXAHCLOCYCLOHEXANE	ppb	NA	ND(0.1)	ND(0.1)	NA						
BENZENE	ppb	NA	ND(.010)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 20

VULCAN MONITOR WELL ANALYSES
TREND FOR MW8SBS

DATE		Nov-77	Jul-79	Dec-81	Oct-82	Mar-84	Oct-85	Sep-86	Apr-87	Oct-88	Dec-89
WELL NUMBER		MW8SBS	MW8SBS	MW8SBS	MW8SBS	MW8SBS	MW8SBS	MW8SBS	MW8SBS	MW8SBS	MW8SBS
HARDNESS as CaCO ₃	ppm	640	1270	690	592	610	870	810	830	680	818
CHLORIDES as Cl	ppm	1400	1289	1217	1095	992	788	784	678	768	810
METHYL CHLORIDE	ppm	NA	NA	NA	NA	0.012	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.03	0.008	0.123	0.002	ND(0.010)	ND(0.005)	ND(0.005)	0.011	ND(0.010)
CHLOROFORM	ppm	ND(0.03)	2.16	0.076	0.267	0.075	0.140	0.061	0.061	0.170	0.075
111-TRICHLOROETHANE	ppm	ND(0.10)	0.15	ND(0.001)	NA	ND(0.001)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
• ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.12	0.002	0.104	0.001	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
CARBON TETRACHLORIDE	ppm	0.18	0.07	1.120	0.410	0.001	4.300	2.600	1.800	2.700	2.200
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.003	NA	0.001	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.27	0.014	0.009	0.009	0.010	ND(0.005)	0.005	ND(0.005)	ND(0.010)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	0.021	0.20	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	0.009	0.036	0.110	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	0.03	ND(0.001)	0.008	ND(0.01)	1.20	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	4.90	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.006	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	ND(0.01)	1.8	0.6	0.02	11.8	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	0.80	0.2	ND(0.10)	ND(0.10)	3.3	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	ND(0.02)	0.9	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	0.3	0.5	0.6	0.2	0.11	0.13	ND(0.1)	0.11
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	0.2	15.5	0.7	0.81	0.53	0.88	0.30
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	0.4	0.1	1.5	0.3	0.15	0.14	0.13	0.21
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.010)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 21

VULCAN MONITOR WELL ANALYSES
TREND FOR MW9SAD

DATE		Oct-77	Jul-79	May-81	Mar-83	Sep-85	Apr-87	Oct-88	Dec-88	Mar-89	Dec-89
WELL NUMBER		MW9SAD									
HARDNESS as CaCO ₃	ppm	180	170	267	330	320	440	590	540	610	570
CHLORIDES as Cl	ppm	24	30	33	128	157	253	381	332	379	400
METHYL CHLORIDE	ppm	NA	NA	NA	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)	ND(0.010)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.03	0.008	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
CHLOROFORM	ppm	ND(0.03)	0.08	0.006	ND(0.10)	ND(0.010)	0.016	0.075	0.120	0.270	0.330
1,1,1-TRICHLOROETHANE	ppm	ND(0.10)	ND(0.01)	ND(0.001)	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)	ND(0.010)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.01	0.002	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.01	0.148	ND(0.10)	ND(0.010)	0.025	0.081	0.230	0.470	0.530
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.001	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)	ND(0.010)
PERCHLOROETHYLENE	ppm	0.004	0.08	0.006	ND(0.10)	ND(0.010)	0.007	0.018	0.031	0.050	0.068
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	*	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	0.004	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.058	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	0.014	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
HEXACHLOROETHANE	ppb	0.66	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	0.11	0.28	0.26	0.38
HEXACHLOROBUTADIENE	ppb	4.30	ND(0.2)	0.2	0.12	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	4.53
HEXACHLOROBENZENE	ppb	1.20	ND(0.2)	1.7	0.24	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	0.11	NA
BENZENE	ppb	NA	ND(0.010)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 22

VULCAN MONITOR WELL ANALYSES
TREND FOR MW9SBS

DATE		Oct-77	Jul-79	Mar-81	Mar-83	Sep-85	Oct-86	Apr-87	Dec-88	Mar-89	Dec-89
WELL NUMBER		MW9SBS									
HARDNESS as CaCO ₃	ppm	170	170	180	180	180	270	220	290	280	1440
CHLORIDES as Cl	ppm	14	16	15	12	41	103	57	123	103	3000
METHYL CHLORIDE	ppm	NA	NA	NA	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)	
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.02	0.001	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	0.012	0.005	ND(0.010)
CHLOROFORM	ppm	ND(0.03)	0.08	0.003	ND(0.10)	ND(0.010)	0.085	0.050	0.280	0.250	9.900
111-TRICHLOROETHANE	ppm	ND(0.10)	ND(0.01)	ND(0.001)	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.01	0.049	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.010)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.01	0.005	ND(0.10)	ND(0.010)	0.200	0.081	0.440	0.420	10.000
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.001	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.120
PERCHLOROETHYLENE	ppm	0.003	0.11	0.010	ND(0.10)	ND(0.010)	0.120	0.032	0.062	0.050	2.400
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	*	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	0.003	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	0.005	0.011	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	0.112	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
HEXACHLOROETHANE	ppb	0.72	ND(0.2)	0.4	0.70	ND(0.1)	1.50	0.62	0.57	0.26	17.70
HEXACHLOROBUTADIENE	ppb	3.90	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	0.48	0.15	ND(0.1)	ND(0.1)	4.53
HEXACHLOROBENZENE	ppb	0.72	ND(0.2)	0.4	0.27	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	1.52
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.29
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.20
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	0.11	NA
BENZENE	ppb	NA	ND(.100)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 23

VULCAN MONITOR WELL ANALYSES
TREND FOR MW10SAD

DATE		Nov-77	Jul-79	Dec-81	Oct-83	Oct-85	Nov-86	Apr-87	Sep-88	Mar-89	Feb-90
WELL NUMBER		MW10SAD	MW10SAD								
HARDNESS as CaCO ₃	ppm	180	190	130	170	150	200	240	210	250	412
CHLORIDES as Cl	ppm	16	16	14	8	4	11	42	19	12	12
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	ND(0.01)	0.004	0.049	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	0.03	0.003	ND(0.005)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
111-TRICHLOROETHANE	ppm	ND(0.10)	ND(0.01)	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	ND(0.01)	0.103	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	0.04	0.01	0.034	ND(0.108)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.019	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.09	0.008	0.069	ND(0.010)	ND(0.005)	0.017	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	0.01	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	0.08	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.02	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	0.09	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
HEXACHLOROETHANE	ppb	0.10	ND(0.2)	ND(0.10)	0.14	ND(0.1)	9.4	8.10	8.30	0.84	ND(10)
HEXACHLOROBUTADIENE	ppb	0.18	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	16.0	6.40	1.80	3.80	0.54
HEXACHLOROBENZENE	ppb	ND(0.01)	0.3	ND(0.10)	ND(0.03)	ND(0.1)	0.6	0.17	0.15	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	0.4	0.18	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA	0.18	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 24

VULCAN MONITOR WELL ANALYSES
TREND FOR MW10SBS

DATE		Nov-77	Jul-79	Dec-81	Oct-83	Oct-85	Nov-86	Apr-87	Sep-88	Mar-89	Feb-90
WELL NUMBER		MW10SBS									
HARDNESS as CaCO ₃	ppm	170	170	130	210	120	200	240	250	250	281
CHLORIDES as Cl	ppm	18	10	6	10	6	10	15	14	10	8
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)	
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.01	0.003	0.061	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	0.05	0.002	0.092	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(0.10)	ND(0.01)	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	ND(0.01)	0.002	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	0.04	ND(0.01)	0.042	ND(0.108)	ND(0.010)	0.006	0.008	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.005	NA	ND(0.010)	ND(0.005)	0.007	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.04	0.007	ND(0.004)	ND(0.010)	0.007	0.011	ND(0.005)	ND(0.005)	0.020
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	0.04	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.02	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXAChLOROETHANE	ppb	0.46	7.4	ND(0.10)	0.92	ND(0.1)	13.0	24.00	11.00	0.76	ND(10)
HEXAChLOROBUTADIENE	ppb	0.94	0.3	ND(0.10)	ND(0.10)	ND(0.1)	19.0	4.90	21.00	4.90	1.41
HEXAChLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	0.02	ND(0.1)	1.4	1.60	0.62	ND(0.1)	ND(0.1)
A-HEXAChLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	0.2	ND(0.1)	0.7	0.22	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXAChLOROCYCLOHEXANE	ppb	NA	NA	NA	0.1	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.57
G-HEXAChLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	0.6	ND(0.1)	0.5	0.65	0.45	ND(0.1)	ND(0.1)
D-HEXAChLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA	0.48	0.17	ND(0.1)	NA
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 25

VULCAN MONITOR WELL ANALYSES
TREND FOR MW11SAD

DATE		Nov-77	Jul-79	Dec-81	Mar-83	Oct-85	Sep-86	Apr-87	Sep-88	Mar-89	Dec-89
WELL NUMBER		MW11SAD									
HARDNESS as CaCO ₃	ppm	830	380	270	170	230	210	200	190	190	187
CHLORIDES as Cl	ppm	1160	243	281	97	81	76	77	63	61	62
METHYL CHLORIDE	ppm	NA	NA	NA	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.17	0.002	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	0.10	0.014	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(0.10)	0.04	ND(0.001)	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.05	ND(0.001)	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	0.32	0.01	1.000	ND(0.10)	ND(0.010)	0.012	ND(0.005)	ND(0.005)	ND(0.005)	0.009
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.005	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.02	0.011	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	0.001	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.002	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	0.20	ND(0.2)	ND(0.10)	0.47	1.5	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	2.10	ND(0.2)	ND(0.10)	ND(0.10)	1.1	0.16	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	1.52	0.3	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	ND(0.10)	ND(0.1)	0.20	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 26

VULCAN MONITOR WELL ANALYSES
TREND FOR MW11SBS

DATE		Nov-77	Jul-79	Dec-81	Mar-83	Oct-85	Sep-86	Apr-87	Sep-88	Mar-89	Dec-89
WELL NUMBER		MW11SBS									
HARDNESS as CaCO ₃	ppm	500	340	220	100	160	160	100	130	70	93
CHLORIDES as Cl	ppm	530	166	159	95	23	21	8	16	19	25
METHYL CHLORIDE	ppm	NA	NA	NA	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)	
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.08	0.001	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.002
CHLOROFORM	ppm	ND(0.03)	0.08	0.005	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.001
111-TRICHLOROETHANE	ppm	ND(0.10)	0.05	ND(0.001)	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.03	ND(0.001)	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	1.30	0.01	0.178	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.064
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.001	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.001
PERCHLOROETHYLENE	ppm	ND(0.002)	0.03	0.004	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
PHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	*	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,6-DICHLOROPHENOL	ppm	ND(0.02)	0.001	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)	
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.024	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	0.007	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	0.40	ND(0.2)	ND(0.10)	0.10	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	3.20	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	0.31	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	0.10	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	0.3	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	0.37	0.2	0.28	0.16	ND(0.1)	ND(0.1)	0.29
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	0.28	0.12	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 27

VULCAN MONITOR WELL ANALYSES
TREND FOR MW12SAD

DATE		Nov-77	Jul-79	Dec-81	Dec-83	Feb-85	Oct-87	Aug-88	Oct-88	Apr-89	Dec-89
WELL NUMBER		MW12SAD									
HARDNESS as CaCO ₃	ppm	1570	550	390	260	340	350	370	300	350	419
CHLORIDES as Cl	ppm	1760	480	211	560	127	116	100	115	112	150
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.005
METHYLENE CHLORIDE	ppm	0.40	0.05	0.014	0.041	0.004	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	0.33	0.04	0.022	ND(0.005)	0.005	0.011	ND(0.005)	0.012	ND(0.005)	0.007
111-TRICHLOROETHANE	ppm	ND(0.10)	0.02	ND(0.001)	NA	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.29	0.003	NA	ND(0.001)	0.008	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	0.25	0.01	0.008	ND(0.108)	0.303	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.005
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.037	NA	0.007	0.008	ND(0.005)	ND(0.005)	ND(0.005)	0.009
PERCHLOROETHYLENE	ppm	0.19	1.00	0.029	ND(0.004)	0.011	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.011
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	0.33	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.025
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	0.133	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	0.18	0.051	0.103	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.016
2,4,6-TRICHLOROPHENOL	ppm	0.64	ND(0.001)	0.081	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.007
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	10.4	0.5	0.2	0.42	0.12	0.34	ND(0.1)	ND(0.1)	ND(0.1)	ND(1.00)
HEXACHLOROBUTADIENE	ppb	26.9	15.0	ND(0.10)	0.90	0.73	0.11	0.10	0.16	0.14	ND(1.00)
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	ND(0.03)	0.05	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	7.5	2.0	0.3	4.3	0.13	0.16	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	6.2	0.13	0.83	0.21	0.26	ND(0.1)	0.15
G-HEXACHLOROCYCLOHEXANE	ppb	5.8	1.9	0.3	0.3	ND(0.01)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.29 ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.12 NA
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 28

VULCAN MONITOR WELL ANALYSES
TREND FOR MW12SBS

DATE		Nov-77	Jul-79	Dec-81	Dec-83	Feb-85	Oct-87	Aug-88	Oct-88	Apr-89	Dec-89
WELL NUMBER		MW12SBS	MW12SBS								
HARDNESS as CaCO ₃	ppm	4800	4300	3050	1540	910	780	460	310	530	476
CHLORIDES as Cl	ppm	10000	8870	6947	1800	805	666	560	657	565	480
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.001)	ND(0.005)	0.016	ND(0.005)	ND(0.005)	ND(.100)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	ND(0.001)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.100)
METHYLENE CHLORIDE	ppm	2.73	12.69	9.40	6.21	0.376	0.094	0.380	0.810	0.570	ND(.100)
CHLOROFORM	ppm	4.53	0.53	6.50	8.41	2.290	1.200	4.700	6.900	6.400	7.300
111-TRICHLOROETHANE	ppm	ND(0.10)	13.45	ND(0.001)	NA	ND(0.001)	ND(0.005)	0.018	0.008	ND(0.005)	ND(.100)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	42.70	0.43	NA	0.058	0.012	0.130	0.220	0.011	ND(.100)
CARBON TETRACHLORIDE	ppm	3.20	0.06	0.82	ND(0.108)	1.540	2.000	7.600	16.000	12.000	11.000
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	0.42	NA	ND(0.001)	0.046	0.280	0.300	0.190	0.260
PERCHLOROETHYLENE	ppm	3.19	61.42	4.40	1.20	ND(0.001)	0.810	4.000	4.600	3.500	4.700
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	0.08	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4-DICHLOROPHENOL	ppm	0.21	NA	ND(0.001)	0.04	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PARACHLOROPHENOL	ppm	NA	0.016	0.723	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,6-DICHLOROPHENOL	ppm	0.84	0.162	0.135	0.23	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	3.62	ND(0.001)	0.025	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	0.27	0.001	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PENTACHLOROPHENOL	ppm	0.63	0.008	ND(0.001)	0.12	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
HEXACHLOROETHANE	ppb	95.8	18	2.3	57.2	8.90	2.70	2.40	1.40	6.30	16.80
HEXACHLOROBUTADIENE	ppb	223.0	135	16.0	21.2	5.81	2.40	1.90	1.40	1.30	2.86
HEXACHLOROBENZENE	ppb	ND(0.01)	39	ND(0.10)	3.8	0.31	0.18	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	124.0	32	56.0	21.1	0.39	0.53	0.69	0.98	0.31	0.81
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	26.3	8.80	13.00	5.80	7.60	0.30	4.53
G-HEXACHLOROCYCLOHEXANE	ppb	49.3	30	13.2	42.3	0.52	0.60	0.70	1.10	2.60	0.31
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	0.10	1.80	1.10	0.92	NA
BENZENE	ppb	NA	ND(.100)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 29

VULCAN MONITOR WELL ANALYSES
TREND FOR MW13SAD

DATE		Nov-77	Jul-79	Dec-81	Oct-83	Oct-85	Apr-87	May-88	Sep-88	Apr-89	Feb-90
WELL NUMBER		MW13SAD									
HARDNESS as CaCO ₃	ppm	190	180	160	190	90	130	120	150	140	288
CHLORIDES as Cl	ppm	22	22	32	39	3	9	35	40	18	55
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)	
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	0.01	0.003	ND(0.004)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	0.02	0.002	ND(0.005)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(0.10)	0.01	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	ND(0.01)	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.07	0.014	ND(0.108)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.05	0.002	ND(0.004)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	0.02	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	0.03	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	0.02	ND(0.2)	ND(0.10)	12.2	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	0.98	ND(0.2)	ND(0.10)	12.8	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	2.4	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	32.6	0.1	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	31.8	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	47.2	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 30

VULCAN MONITOR WELL ANALYSES
TREND FOR MW13SBS

DATE		Nov-77	Jul-79	Dec-81	Oct-83	Oct-85	Apr-87	May-88	Sep-88	Apr-89	Feb-90
WELL NUMBER		MW13SBS									
HARDNESS as CaCO ₃	ppm	160	250	140	170	130	170	190	200	180	217
CHLORIDES as Cl	ppm	8	12	7	37	4	9	37	18	17	31
METHYL CHLORIDE	ppm	NA	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.25)	ND(0.01)	0.003	0.009	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.03)	0.02	0.002	0.006	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(0.10)	ND(0.01)	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	ND(0.01)	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.03)	0.02	0.009	ND(0.108)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.10)	ND(0.10)	ND(0.001)	NA	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.002)	0.09	0.002	0.004	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.02)	NA	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	NA	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	ND(0.001)	0.01	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	0.02	ND(0.2)	ND(0.10)	0.08	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	1.20	ND(0.2)	ND(0.10)	ND(0.10)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	ND(0.10)	0.05	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.10)	ND(0.2)	ND(0.10)	2.1	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	0.9	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	ND(0.2)	ND(0.10)	1.0	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppm	NA	ND(.001)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 31

VULCAN MONITOR WELL ANALYSES
TREND FOR MW14SAD

DATE		Apr-88	Nov-88	Apr-89	Dec-89
WELL NUMBER		MW14SAD	MW14SAD	MW14SAD	MW14SAD
HARDNESS as CaCO ₃	ppm	380	380	390	359
CHLORIDES as Cl	ppm	21	21	22	21
METHYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	NA	NA	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 32

VULCAN MONITOR WELL ANALYSES
TREND FOR MW14SBS

DATE		Apr-88	Nov-88	Apr-89	Dec-89
WELL NUMBER		MW14SBS	MW14SBS	MW14SBS	MW14SBS
HARDNESS as CaCO ₃	ppm	180	160	170	169
CHLORIDES as Cl	ppm	22	22	24	24
METHYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	NA	NA	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 33

VULCAN MONITOR WELL ANALYSES
TREND FOR MW15SAD

DATE	Apr-88	Nov-88	Apr-89	Dec-89	
WELL NUMBER	MW15SAD	MW15SAD	MW15SAD	MW15SAD	
HARDNESS as CaCO ₃	ppm	230	190	200	196
CHLORIDES as Cl	ppm	16	16	21	14
METHYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
111-TRICHLOROETHANE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,5-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PARACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
METACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
HEXACHLOROETHANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	NA	NA	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 34

VULCAN MONITOR WELL ANALYSES
TREND FOR MW15SBS

DATE		Apr-88	Nov-88	Apr-89	Dec-89
WELL NUMBER		MW15SBS	MW15SBS	MW15SBS	MW15SBS
HARDNESS as CaCO ₃	ppm	250	230	200	297
CHLORIDES as Cl	ppm	82	117	122	155
METHYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	NA	NA	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 35

VULCAN MONITOR WELL ANALYSES
TREND FOR MW16SAD

DATE		Apr-88	Nov-88	May-89	Dec-89
WELL NUMBER		MW16SAD	MW16SAD	MW16SAD	MW16SAD
HARDNESS as CaCO ₃	ppm	240	180	230	209
CHLORIDES as Cl	ppm	29	28	28	27
METHYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CHLOROFORM	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
1,1,1-TRICHLOROETHANE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
TRICHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,5-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PARACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
METACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,6-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,6-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
PENTACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.005)
HEXACHLOROETHANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBUTADIENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
A-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
B-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
D-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	NA	NA	ND(.001)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 36

VULCAN MONITOR WELL ANALYSES
TREND FOR MW16SBS

DATE		Apr-88	Nov-88	Apr-89	Dec-89
WELL NUMBER		MW16SBS	MW16SBS	MW16SBS	MW16SBS
HARDNESS as CaCO ₃	ppm	4570	3700	3950	4300
CHLORIDES as Cl	ppm	17310	16540	15300	16700
METHYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
VINYL CHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
METHYLENE CHLORIDE	ppm	0.018	0.016	0.012	0.002
CHLOROFORM	ppm	1.400	1.300	1.300	1.200
1,1,1-TRICHLOROETHANE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ETHYLENE DICHLORIDE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
CARBON TETRACHLORIDE	ppm	0.066	0.069	0.070	0.077
TRICHLOROETHYLENE	ppm	0.010	0.007	0.007	ND(.001)
PERCHLOROETHYLENE	ppm	ND(0.005)	ND(0.005)	ND(0.005)	ND(.001)
ORTHOCHLOROPHENOL	ppm	0.08	0.02	ND(0.010)	ND(.050)
PHENOL	ppm	0.01	ND(0.010)	0.11	ND(.050)
2,4-DICHLOROPHENOL	ppm	1.30	0.60	1.30	0.17
2,5-DICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.050)
PARACHLOROPHENOL	ppm	0.04	ND(0.010)	ND(0.010)	ND(.050)
METACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.050)
2,6-DICHLOROPHENOL	ppm	0.65	0.14	0.74	0.28
2,4,6-TRICHLOROPHENOL	ppm	7.40	5.30	8.40	ND(.050)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	2.60
2,3,4,5-TETRACHLOROPHENOL	ppm	2.10	1.60	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	0.02	ND(0.010)	ND(0.010)	ND(.050)
PENTACHLOROPHENOL	ppm	ND(0.010)	ND(0.010)	ND(0.010)	ND(.050)
HEXACHLOROETHANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(5.00)
HEXACHLOROBUTADIENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(5.00)
HEXACHLOROBENZENE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	ND(5.00)
A-HEXACHLOROCYCLOHEXANE	ppb	3.20	5.30	6.10	7.29
B-HEXACHLOROCYCLOHEXANE	ppb	6.50	8.50	3.90	11.40
G-HEXACHLOROCYCLOHEXANE	ppb	2.50	3.90	8.30	5.94
D-HEXACHLOROCYCLOHEXANE	ppb	ND(0.1)	ND(0.1)	ND(0.1)	NA
BENZENE	ppb	NA	NA	NA	0.51

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 37

VULCAN WELL ANALYSES
TREND FOR IW29

DATE		JAN 78	JUL 79	NOV 82	JUL 84	FEB 85	AUG 86	Apr-87	Nov-88	Jun-89	Jan-90
WELL NUMBER		IW29	IW29	IW29	IW29	IW29	IW29	IW29	IW29	IW29	IW29
HARDNESS as CaCO ₃	ppm	330	2060	1410	1300	1420	1350	1260	1290	1200	1090
CHLORIDES as Cl	ppm	240	4076	2613	2390	2150	2070	1893	1858	1722	1850
METHYL CHLORIDE	ppm	NA	NA	NA	0.257	4.79	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.500)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	0.020	ND(0.001)	ND(0.005)	0.049	ND(0.005)	0.016	ND(.500)
METHYLENE CHLORIDE	ppm	ND(0.25)	3.25	1.12	0.849	0.82	1.800	1.800	1.700	0.850	0.800
CHLOROFORM	ppm	ND(0.03)	3.26	1.92	4.880	8.14	13.000	10.000	6.500	6.600	9.400
111-TRICHLOROETHANE	ppm	ND(0.10)	9.38	NA	1.530	ND(0.001)	ND(0.005)	0.031	0.026	0.029	ND(.500)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	11.15	0.45	ND(0.001)	0.38	0.640	0.430	0.260	0.160	ND(.500)
CARBON TETRACHLORIDE	ppm	0.04	0.07	4.87	2.230	5.12	4.400	2.400	1.400	2.000	1.000
TRICHLOROETHYLENE	ppm	ND(0.10)	4.02	NA	0.076	0.76	1.100	0.490	0.130	0.094	ND(.500)
PERCHLOROETHYLENE	ppm	0.016	7.58	0.54	2.370	3.94	5.100	2.100	1.300	1.300	1.500
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	0.18	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	0.09	ND(0.010)	0.01
PHENOL	ppm	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	0.12	ND(.005)
2,4-DICHLOROPHENOL	ppm	0.013	NA	2.30	0.32	ND(0.01)	ND(0.010)	ND(0.010)	0.26	0.43	0.10
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	0.33	ND(0.010)	ND(0.010)	NA
PARACHLOROPHENOL	ppm	NA	0.002	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	0.03	0.05
METACHLOROPHENOL	ppm	NA	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,6-DICHLOROPHENOL	ppm	ND(0.02)	ND(0.001)	1.18	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	0.02	0.08	0.02
2,4,6-TRICHLOROPHENOL	ppm	0.005	ND(0.001)	1.43	0.16	ND(0.01)	ND(0.010)	ND(0.010)	0.02	0.02	0.05
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.010)	0.13	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	ND(0.001)	0.08	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
PENTACHLOROPHENOL	ppm	ND(0.03)	ND(0.001)	0.86	0.23	0.05	ND(0.010)	ND(0.010)	0.03	0.03	0.01
HEXACHLOROETHANE	ppb	1.7	2.5	2.12	1.3	0.4	2.50	1.80	2.40	2.10	4.64
HEXACHLOROBUTADIENE	ppb	47.5	66.0	100.60	15.8	15.4	18.00	8.10	20.00	15.00	47.60
HEXACHLOROBENZENE	ppb	ND(0.01)	ND(0.2)	24.38	ND(0.1)	6.4	0.12	0.17	ND(0.1)	ND(0.1)	ND(0.010)
A-HEXACHLOROCYCLOHEXANE	ppb	0.6	3.1	ND(0.10)	0.6	4.4	1.00	0.73	0.67	0.29	ND(0.010)
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	0.5	4.5	11.1	1.80	1.30	1.00	0.15	0.17
G-HEXACHLOROCYCLOHEXANE	ppb	ND(0.30)	1.9	ND(0.20)	1.0	4.8	0.53	0.39	0.34	1.00	0.14
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	0.91	0.25	0.20	0.10	NA
BENZENE	ppm	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(.500)

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 38

VULCAN WELL ANALYSES
TREND FOR IW30

DATE		JAN 78	JUL 79	MAY 81	MAR 83	FEB 85	AUG 86	Apr-87	Nov-88	Jun-89	Jan-90
WELL NUMBER		IW30	IW30								
HARDNESS as CaCO ₃	ppm	10200	7900	7200	5800	3150	4700	3270	2800	2600	2910
CHLORIDES as Cl	ppm	18800	18059	16900	12640	8390	7870	7654	7160	6022	5900
METHYL CHLORIDE	ppm	NA	NA	NA	ND(0.10)	7.0	ND(0.005)	30.000	ND(0.005)	ND(0.005)	ND(.500)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	ND(0.10)	ND(0.001)	0.410	ND(0.005)	ND(0.005)	ND(0.005)	ND(.500)
METHYLENE CHLORIDE	ppm	17.5	34.47	3.66	60.8	89.4	160.000	96.000	96.000	49.000	38.000
CHLOROFORM	ppm	6.4	9.09	6.73	114.0	277.3	510.000	240.000	210.000	190.000	100.000
111-TRICHLOROETHANE	ppm	ND(0.10)	18.03	ND(0.001)	ND(0.10)	0.6	ND(0.005)	1.100	1.200	1.100	0.550
ETHYLENE DICHLORIDE	ppm	ND(0.10)	146.69	0.96	219.7	7.7	16.000	13.000	9.700	14.000	ND(.500)
CARBON TETRACHLORIDE	ppm	6.2	0.18	11.20	228.0	823.0	550.000	160.000	150.000	150.000	51.000
TRICHLOROETHYLENE	ppm	ND(0.10)	0.31	0.52	13.3	11.6	78.000	35.000	4.400	5.000	2.600
PERCHLOROETHYLENE	ppm	29.4	179.76	12.20	199.0	83.5	340.000	120.000	34.000	28.000	20.000
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	0.36	0.27	0.04	ND(.005)
PHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	0.06	0.34	ND(.005)
2,4-DICHLOROPHENOL	ppm	6.08	NA	ND(0.001)	0.296	0.590	ND(0.010)	3.60	1.10	1.60	0.03
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
PARACHLOROPHENOL	ppm	NA	0.002	ND(0.001)	*	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	0.03	0.01
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,6-DICHLOROPHENOL	ppm	3.51	ND(0.001)	0.333	ND(0.001)	ND(0.01)	ND(0.010)	0.25	0.06	0.27	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	14.70	0.081	5.350	0.317	0.046	ND(0.010)	1.50	0.62	0.82	0.09
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	0.02	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	0.18	0.014	0.080	0.125	0.049	ND(0.010)	0.29	0.11	0.14	0.05
PENTACHLOROPHENOL	ppm	1.30	ND(0.001)	0.087	0.930	0.320	ND(0.010)	0.96	0.48	0.65	0.21
HEXACHLOROETHANE	ppb	2870	2550	870.0	1960.0	1077	200.0	50.00	450.00	580.00	823.00
HEXACHLOROBUTADIENE	ppb	676	2563	159.0	897.8	512	230.0	74.00	260.00	470.00	709.00
HEXACHLOROBENZENE	ppb	6	25	60.0	0.7	30	2.6	20.00	ND(0.1)	ND(0.1)	13.50
A-HEXACHLOROCYCLOHEXANE	ppb	30	170	14.1	10.0	28	27.0	19.00	13.00	10.00	10.70
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	8.2	79	18.0	13.00	9.30	22.00	ND(10.0)
G-HEXACHLOROCYCLOHEXANE	ppb	126	155	14.0	11.2	61	40.0	29.00	23.00	4.10	26.40
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	81.0	30.00	28.00	18.00	NA
BENZENE	ppm	NA	ND(.500)								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 39

VULCAN WELL ANALYSES
TREND FOR IW31

DATE		JAN 78	SEP 80	DEC 81	MAR 83	FEB 85	AUG 86	Apr-87	Nov-88	Jun-89	Jan-90
WELL NUMBER		IW31	IW31								
HARDNESS as CaCO ₃	ppm	8100	6500	5300	3400	3900	3800	3550	2700	2950	2760
CHLORIDES as Cl	ppm	15700	15249	12500	9312	11900	10190	9755	9734	8198	7950
METHYL CHLORIDE	ppm	NA	NA	NA	ND(0.10)	87.0	ND(0.005)	21.000	ND(0.005)	ND(0.005)	ND(.500)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	ND(0.10)	0.6	1.600	ND(0.005)	0.190	0.068	ND(.500)
METHYLENE CHLORIDE	ppm	10.8	3.11	1.85	3.3	16.0	35.000	12.000	8.300	3.000	3.000
CHLOROFORM	ppm	10.1	3.08	3.60	ND(0.10)	ND(0.001)	120.000	39.000	28.000	27.000	21.000
111-TRICHLOROETHANE	ppm	ND(0.10)	NA	ND(0.001)	ND(0.10)	ND(0.001)	ND(0.005)	0.480	0.200	0.091	ND(.500)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.24	0.24	2.8	ND(0.001)	6.700	1.900	0.630	0.370	ND(.500)
CARBON TETRACHLORIDE	ppm	4.2	20.60	0.94	86.0	61.8	280.000	68.000	5.600	5.800	3.500
TRICHLOROETHYLENE	ppm	ND(0.10)	0.26	0.36	ND(0.10)	4.3	32.000	4.000	0.970	0.770	0.550
PERCHLOROETHYLENE	ppm	3.9	6.86	4.90	8.1	14.8	190.000	21.000	13.000	14.000	8.100
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	0.04	ND(0.010)	0.16
PHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	0.07	ND(.005)
2,4-DICHLOROPHENOL	ppm	5.09	NA	ND(0.001)	0.427	0.32	ND(0.010)	ND(0.010)	0.86	2.00	0.32
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA	NA
PARACHLOROPHENOL	ppm	NA	1.10	ND(0.001)	*	ND(0.01)	ND(0.010)	ND(0.010)	0.02	ND(0.010)	0.02
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,6-DICHLOROPHENOL	ppm	2.56	2.32	0.496	ND(0.001)	ND(0.01)	ND(0.010)	0.53	0.08	0.54	0.09
2,4,6-TRICHLOROPHENOL	ppm	10.50	0.444	0.140	0.397	ND(0.01)	ND(0.010)	2.70	0.87	1.40	0.33
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.001)	ND(0.01)	0.028	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	0.13	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	0.55	0.145	0.004	0.044	ND(0.01)	ND(0.010)	ND(0.010)	0.08	0.19	ND(.005)
PENTACHLOROPHENOL	ppm	6.91	ND(0.001)	ND(0.001)	0.108	0.90	ND(0.010)	2.10	0.71	0.98	0.43
HEXACHLOROETHANE	ppb	1310	580	115.0	948.6	956	170.0	120.00	370.00	370.00	680.00
HEXACHLOROBUTADIENE	ppb	1720	520	42.0	617.9	661	220.0	120.00	340.00	360.00	759.00
HEXACHLOROBENZENE	ppb	6	ND(0.10)	2.6	ND(0.10)	7	3.1	22.00	1.20	ND(0.1)	2.69
A-HEXACHLOROCYCLOHEXANE	ppb	227	ND(0.10)	9.6	37.5	1.38	56.0	43.00	68.00	51.00	71.70
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	41.1	9.11	15.0	12.00	10.00	69.00	ND(5.00)
G-HEXACHLOROCYCLOHEXANE	ppb	282	ND(0.10)	6.6	41.0	0.54	54.0	46.00	81.00	5.50	ND(5.00)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	99.0	34.00	100.00	55.00	NA
BENZENE	ppm	NA	2.7								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported

TABLE 40

VULCAN WELL ANALYSES
TREND FOR IW32

DATE		JAN 78	MAR 80	DEC 81	MAR 83	OCT 85	DEC 86	Dec-87	Nov-88	Jun-89	Jan-90
WELL NUMBER		IW32	IW32								
HARDNESS as CaCO ₃	ppm	5900	9100	5000	4300	3080	2880	2880	2760	2410	2190
CHLORIDES as Cl	ppm	14000	13122	10800	13260	7000	6626	6749	6261	5529	5240
METHYL CHLORIDE	ppm	NA	NA	NA	ND(0.10)	0.04	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.010)
VINYL CHLORIDE	ppm	ND(0.10)	NA	NA	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.010)
METHYLENE CHLORIDE	ppm	0.10	0.03	0.27	ND(0.10)	0.27	0.36	0.260	0.250	0.050	0.045
CHLOROFORM	ppm	0.43	0.23	1.07	14.0	2.70	0.89	0.870	0.740	0.540	0.530
111-TRICHLOROETHANE	ppm	ND(0.10)	NA	ND(0.001)	ND(0.10)	ND(0.010)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.010)
ETHYLENE DICHLORIDE	ppm	ND(0.10)	0.14	0.19	ND(0.10)	ND(0.010)	0.19	0.220	0.200	0.140	ND(.010)
CARBON TETRACHLORIDE	ppm	0.07	0.16	1.48	14.1	1.10	0.99	0.920	1.100	1.000	0.640
TRICHLOROETHYLENE	ppm	ND(0.10)	0.01	0.05	ND(0.10)	ND(0.010)	0.12	0.055	0.060	0.027	ND(.010)
PERCHLOROETHYLENE	ppm	0.18	0.06	0.55	ND(0.10)	0.65	1.50	0.600	0.500	0.230	0.190
ORTHOCHLOROPHENOL	ppm	ND(0.02)	NA	NA	ND(0.001)	0.51	0.92	1.00	1.20	ND(0.010)	1.00
PHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	2.20	ND(.050)
2,4-DICHLOROPHENOL	ppm	7.29	NA	ND(0.001)	0.665	4.80	4.00	2.90	2.90	6.90	2.00
2,5-DICHLOROPHENOL	ppm	NA	NA	NA	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA	
PARACHLOROPHENOL	ppm	NA	1.03	ND(0.001)	*	1.20	0.78	0.39	0.51	2.60	3.40
METACHLOROPHENOL	ppm	NA	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
2,6-DICHLOROPHENOL	ppm	2.38	1.82	0.046	ND(0.001)	0.78	0.51	0.47	0.17	1.20	1.30
2,4,6-TRICHLOROPHENOL	ppm	2.79	0.003	0.114	0.446	2.20	0.90	0.40	0.35	0.19	ND(.050)
2,4,5-TRICHLOROPHENOL	ppm	ND(0.001)	NA	NA	ND(0.001)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.050)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	NA	NA	0.02	ND(0.010)	ND(0.010)	0.10	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	ND(0.01)	0.001	0.001	0.027	0.30	ND(0.010)	0.06	0.03	0.06	15.00
PENTACHLOROPHENOL	ppm	0.24	ND(0.001)	ND(0.001)	0.087	ND(0.01)	0.34	0.15	0.16	0.21	ND(.050)
HEXACHLOROETHANE	ppb	9.4	ND(0.10)	4.1	4.07	7.4	5.0	4.50	6.10	2.10	2.93
HEXACHLOROBUTADIENE	ppb	44.2	1.1	1.1	ND(0.10)	2.1	4.3	2.30	3.40	1.60	78.70
HEXACHLOROBENZENE	ppb	ND(0.01)	0.3	68.0	0.43	0.2	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(1.0)
A-HEXACHLOROCYCLOHEXANE	ppb	1.1	0.5	1.7	ND(0.10)	12.0	2.5	1.60	1.60	0.92	1.35
B-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	ND(0.10)	18.0	4.5	4.00	5.00	0.37	ND(5.00)
G-HEXACHLOROCYCLOHEXANE	ppb	1.5	ND(0.10)	2.3	ND(0.10)	12.0	1.4	0.63	0.66	2.80	ND(5.00)
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	NA	NA	NA	2.3	0.61	0.33	ND(0.1)	NA
BENZENE	ppm	NA	0.23								

ppm denotes parts per million by weight

ppb denotes parts per billion by weight

NA denotes not analysed or combined with another analysis

ND(X) denotes not detected at a detection limit of X

* denotes analysis known to be inaccurate and so not reported



TABLE 41

VULCAN WELL ANALYSES
TREND FOR IW35

DATE		MAR 84	OCT 84	AUG 86	Dec-87	Aug-88	Nov-88	Jun-89	Jan-90
WELL NUMBER		IW35	IW35						
HARDNESS as CaCO ₃	ppm	3100	1390	1200	630	750	670	550	768
CHLORIDES as Cl	ppm	7570	3480	2530	1142	1314	1152	965	815
METHYL CHLORIDE	ppm	1.95	10.2	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(.500)
VINYL CHLORIDE	ppm	NA	0.3	ND(0.005)	ND(0.005)	0.028	ND(0.005)	ND(0.005)	ND(.500)
METHYLENE CHLORIDE	ppm	7.23	162.0	34.000	9.700	9.300	6.200	3.300	ND(.500)
CHLOROFORM	ppm	11.97	709.0	85.000	27.000	26.000	23.000	21.000	12.000
111-TRICHLOROETHANE	ppm	ND(0.001)	ND(0.010)	0.370	0.093	0.085	0.084	0.075	ND(.500)
ETHYLENE DICHLORIDE	ppm	1.10	15.6	4.600	1.000	0.950	1.000	1.300	ND(.500)
CARBON TETRACHLORIDE	ppm	11.51	983.0	130.000	45.000	45.000	54.000	92.000	42.000
TRICHLOROETHYLENE	ppm	0.84	46.6	5.900	0.710	0.850	0.720	0.990	ND(.500)
PERCHLOROETHYLENE	ppm	4.73	276.0	89.000	9.400	9.100	8.000	8.000	6.000
ORTHOCHLOROPHENOL	ppm	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	0.02	ND(0.010)	ND(0.010)	ND(.005)
PHENOL	ppm	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,4-DICHLOROPHENOL	ppm	0.05	0.10	ND(0.010)	ND(0.010)	0.10	0.09	0.02	0.07
2,5-DICHLOROPHENOL	ppm	NA	NA	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
PARACHLOROPHENOL	ppm	0.14	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
METACHLOROPHENOL	ppm	ND(0.01)	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,6-DICHLOROPHENOL	ppm	ND(0.01)	0.11	ND(0.010)	ND(0.010)	0.02	0.01	0.01	ND(.005)
2,4,6-TRICHLOROPHENOL	ppm	0.07	0.05	ND(0.010)	ND(0.010)	0.07	0.07	0.04	ND(.005)
2,4,5-TRICHLOROPHENOL	ppm	0.04	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.005)
2,3,4,5-TETRACHLOROPHENOL	ppm	NA	NA	ND(0.010)	ND(0.010)	ND(0.010)	0.01	ND(0.010)	NA
2,3,4,6-TETRACHLOROPHENOL	ppm	0.07	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	0.03	ND(0.010)	ND(.005)
PENTACHLOROPHENOL	ppm	0.83	ND(0.01)	ND(0.010)	ND(0.010)	ND(0.010)	0.01	0.01	ND(.005)
HEXACHLOROETHANE	ppb	345.0	8490	18.0	3.80	5.90	1.80	3.10	13.40
HEXACHLOROBUTADIENE	ppb	203.0	2140	8.9	4.20	3.30	2.80	0.55	9.25
HEXACHLOROBENZENE	ppb	15.9	68	0.1	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.5)
A-HEXACHLOROCYCLOHEXANE	ppb	19.2	25.3	8.1	4.70	3.10	2.70	1.20	3.44
B-HEXACHLOROCYCLOHEXANE	ppb	2.2	77.4	8.2	8.60	11.00	10.00	0.96	6.29
G-HEXACHLOROCYCLOHEXANE	ppb	15.8	71.8	7.7	3.20	2.60	2.50	5.90	2.25
D-HEXACHLOROCYCLOHEXANE	ppb	NA	NA	14.0	3.10	0.48	2.50	1.60	NA
BENZENE	ppm	NA	ND(.500)						

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